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NOTES BY THE EDITOR

The following are corrections to two recently published articles; the first pertains to the article by Robert E. Dickinson in the December 1949 issue and the second, to the article by John R. Borchert in the March 1950 issue.

1. "Correcting the introductory footnote to Dr. Dickinson's article in the December 1949 issue, the figures taken from Heft I of *Deutschland* . . . by Gustav Braun are Copyright 1926, and those taken from Heft IV are Copyright 1936 by Gebrüder Borntraeger in Berlin. These illustrations and those taken from works by Ebert, Martiny and Baasen were reproduced by permission of the Attorney General of the United States in the public interest, under License No. JA-1429. The German interests in the United States copyrights in these works were vested in 1950, pursuant to law. They should not be further reproduced except by permission of the Office of Alien Property, U. S. Department of Justice."

2. Dr. John R. Borchert requests that the captions for figures 20 and 21, on pages 33 and 37 respectively, in the March 1950 issue be interchanged.

THE FUNCTIONAL APPROACH IN POLITICAL GEOGRAPHY*

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THE subject of this paper and that of President Russell's address of last year reveal in striking fashion the wide scope of the field in which geographers work. Comparison of the treatment in the two papers will, I hope, demonstrate the justification for assuming that the same body of readers may find common interest in the two extremes. This is possible in all our work only if each of us, in developing our special area of interest, will follow Russell's example in striving to maintain its geographic quality.[1]

We can do this if we keep in the forefront of our thinking, that the core of geography is "the study of places,"[2] that is, the analysis of the significant differences that distinguish the various areas of the world from each other. Among the differences that are significant to this areal differentiation, one of the more obvious are differences in landforms; one of the least obvious to the eye, but nonetheless important in molding the character of areas, are the differences in their political organization. In pursuing these and other separate topics, geographers "radiate out in diverse directions" "and for various distances, toward the cores of other disciplines." As long as they remain "ever conscious of where they are" in reference to the central core, they may hope to understand each other's purposes. "Questions of boundaries always seem pedantic in comparison with questions concerning the cores of disciplines."

SURVEY OF PROGRESS

From this common viewpoint, let us cast a critical eye over the progress of political geography in the twenty years since it was described as "the wayward child of the geographic family"—the field that was "least scientific," in which "method

* Presidential address delivered before the Association at its Forty-sixth Annual Meeting in Worcester, Mass., April 7, 1950.

[1] Richard Joel Russell, "Geographical Geomorphology," *Annals of the Association of American Geographers*, XXXIX (1949): 1–11; Presidential address of the 1948 meetings delivered under the title "Towards a More Geographical Geomorphology." My title, in presenting the present paper at the April 1950 meetings was an intentional imitation: "Towards a More Geographical Political Geography."

[2] As a demonstration of the similarity of viewpoints, the phrases in this paragraph in quotation marks are taken alternately from Russell's address, *op. cit.*, p. 11, and from my own article on "On the Mores of Methodological Discussion in American Geography," *Annals of the Association of American Geographers*, XXXVIII (1948): 122. The first phrase, quoted from Russell, geography as "the study of places," stems from Vidal de la Blache and no doubt from many writers centuries before him. Any concerned with more full discussion of the function of geography are referred to my *Nature of Geography*, published by this association, 1939, 1949 particularly to Chapters II, IV, and VIII.

and material are free to the choice of the student," and whose relationship to the field as a whole was difficult to determine.[3] I wish that we could justify a very different description; that we could claim to have developed a sound structural evolution of political geography, clearly integrated into geography as a whole, with established methods of scientific analysis.[4]

It would be easy to point to many outward signs of success. The threat that political geography would be driven off the reservation has subsided. Whereas formerly but one or two departments of geography gave courses under this name, today political geography is found in many college curricula.

One cannot but be amazed by the temerity of American geographers who feel ready to teach this subject without previous training, with but a minimum of study of the literature of the field, and with the barest amount of materials available to put in the hands of students.

True, we have more such materials than we had twenty years ago. Whereas then we had hardly more than a single volume in the English language entitled political geography, today there are many and more are promised. Unfortunately these are mostly textbooks. Better textbooks are essential for better teaching, but the publication of more textbooks can do little to give standing to a field unless we can produce a really good text. To seek that result by simply writing more and better texts is an attempt to pull ourselves up by our bootstraps. A really good textbook can be produced only from the digest of sound scholarly studies. Whether to provide the basis for a first class text, or to establish scholarly standing for the field of political geography, our need is for an organized structure of scholarly knowledge—one in which students can build upon what has been written before.

I do not wish to belittle the scholarly work that has been accomplished in this field. In one or two directions, I think we might claim to have laid down a few fundamental concepts and principles, to have established a few technical terms. Perhaps "established" is too strong a word, since some textbooks writers continue to confuse students with terms, such as "natural boundaries," although long since discredited by scholars in the field.

In an effort to appraise our situation, a graduate seminar joined me a year ago in an examination of a wide range of studies in political geography. We sought to determine what methods geographers use and what materials they employ in studies in this field. We found the greatest variety of methods, and the use of almost every kind of material conceivable. We found no indication of common purpose or objective. In fact, in most cases we could not find that the authors had any clear purpose or objective in mind, other than the rather general idea that geography

[3] Carl Sauer, "Recent Developments in Cultural Geography," in *Recent Developments in the Social Sciences*, E. D. Hayes, editor, Philadelphia, 1927, p. 207.

[4] On the status of political geography fifteen years ago, with extensive bibliography, see Richard Hartshorne, "Recent Developments in Political Geography," *American Political Science Review*, XXIX (1935) : 785–804, 943–966.

somehow has a lot to do with international affairs, and the political geographer should endeavor to find all the ways in which that was the case. I do not think you could find a comparable situation in other branches of geography. If you take a half dozen studies in economic geography you will no doubt find different systems in the same text. It has been a long time since one could accuse economic geography of being nothing more than a collection of geographic aspects of economics. In that field we have developed specific objectives and methods, and have even arrived at some degree of agreement as to the materials to be studied.

What are the writers in political geography trying to do? Using the device of the census, let me throw together into several groups the works of a large number of students, in order not to reveal the operations of any specific author.[5]

In one of these groups, we find that each state is studied in terms of a series of "aspects"—physical, human, and economic—with subheads like landforms, climate . . . agriculture, industry, cities, etc. In this treatment, differing little from that of a conventional geographic study, political flavoring is added by a section on historical aspects and a discussion of boundaries and conflicts with other states.

The thought behind this appears to be simply that in order to study the state, one must know a lot about its geography. We may all agree to that, but to supply a collection of information, some of which may be pertinent, some not, is not a technique of analysis and will not build a field of political geography.

More distinctive is what I may term the "historical" approach. This at least starts with a definite problem—namely to explain how a state has come to occupy the particular area included within its present limits. One way of doing this—the easiest and quickest way—is to start with what exists, point out apparent correspondence of physical and political features and then conclude that history somehow or other has resulted in what was more or less bound to develop. In short, as Vidal de la Blache observed, another form of geographic determinism.

German students, indoctrinated with Ratzel's misleading concept of the state as an organism, have attempted by comparative studies of a handful of examples, to develop principles of state territorial development. We are all too familiar with the dangerous consequences of this form of pseudo-scientific thinking on political action.

To decipher the processes of state territorial development from present facts—as the geomorphologist is forced to do in attempting to recapitulate the evolution of landforms—may be intellectual sport, but hardly intelligent science. For the processes of state development are recorded, in great detail and commonly with contemporaneous explanation, in historical records. The student who undertakes

[5] On the other hand the occasion of this paper, as well as its substantive purpose as a progress report may permit specific indication of the relation of my own work during the past twenty years to the theme developed herein. I have therefore referred, at appropriate points, to all my previous publications in this field. At the same time I should express my indebtedness to the other members of the Centennial Committee on Political Geography for their criticisms and suggestions on the first outline drafted for that committee and utilized freely in this paper.

to study this topic, whether he be historian or geographer by profession, must therefore master a very large amount of historical material. To attain a definitive analysis of a single change in a relatively small area may require examination of a vast amount of both historical and geographic material. To comprehend fully what that means, a student might check through the references in my recent study of the boundary in Lorraine,[6] or observe the scholarship that underlies Whittlesey's study of Andorra[7] and the voluminous historical research needed for his study of the territorial evolution of France.[8]

Before concluding that all who wish to work in political geography must do likewise, we must first ask: Is this approach necessary? How significant are the findings of such studies for an understanding of the present political geography of a state? If I use again the study of Lorraine as an example, its author will not be provoked. Even if Alsace-Lorraine were still part of Germany, would it matter to the geography of Germany whether the reason for the inclusion of the Côtes de Moselle was because of its strategic importance in the military technology of 1871 or because of the iron ores imbedded in its strata? The fact is that Germany got both.

Or consider the story of how the Garonne Basin came to be part of the present state of France. This would, I think, involve examination of such factors as the *langue d'oc* branch of Romance languages, the relative productive resources of the Aquitaine lowland and the Paris Basin, the theoretical significance of the Kingdom of the West Franks as a unit division of Charlemagne's empire, the centuries of success of French queens in producing male offspring, and the long period of conflict with the alien kings of England. But how much of all this is needed for an understanding of the political geography of France today?

Isn't it enough to say that these regions have shared in common social, economic, and political life of the French kingdom and republic for many generations, so that in spite of linguistic differences they are now integral parts of the French *nation,* and therefore will choose to adhere to the French state?

It is not clear to me therefore that such historical studies of genesis are essential for every study in political geography. This is not to say that the geographer does not have a distinct contribution to make to the study of the evolution of a state. But has he not contributed perhaps more to history and to our knowledge of political processes than to political geography?

In short, if we accept the analogy that Maull and East[9] have suggested between studies of the evolution of state-areas and those of the evolution of landforms, we

[6] Richard Hartshorne, "The Franco-German Boundary of 1871," *World Politics,* II (Jan. 1950) : 209–250.

[7] Derwent Whittlesey, "Andorra's Autonomy," *Journal of Modern History* (June 1934): 147–155.

[8] Derwent Whittlesey, *The Earth and the State: A Study in Political Geography.* New York, 1939, pp. 129–165.

[9] Otto Maull, "Politische Geographie und Geopolitik," *Geographischer Anzeiger,* 1926: 251; William G. East, "The Nature of Political Geography," *Politica* II (1937) : 270.

may still be uncertain, in both cases, as to whether such studies form a necessary and integral part of the study of the present geography of areas.

I want to make certain that I cannot be misunderstood in saying that I am uncertain concerning the place of genetic studies.[10] In thus straddling the fence—on the grounds that the attempt to determine boundaries in science is pedantic—I am not saying that I wish to push such studies beyond the fence, or that I recognize the existence of an actual fence. On the contrary, so far as individual geographers are interested in making such studies of states, I personally shall be more than interested in their results. I shall no doubt wish to make more of such studies myself. And if historians or political scientists should wish to claim this part of the field, like my predecessor, I would feel happy to agree on joint exploration; and be somewhat dejected if either side attempted to pass the topic over to the other.[11]

The only negative conclusion I am suggesting that is significant to our present theme is that I am not convinced that such studies form an essential part, or a necessary preliminary section, in the study of the political geography of any state. But neither do I assert the opposite; rather I conclude that only in the course of his study of the present political geography of a state can a student determine how far he need dip back into its historical development.

Let us turn to a third approach, which I may describe as the "morphological approach." This is represented in substantive works primarily in the German literature. It was presented in outline form to American geographers in an article I published some fifteen years ago.[12] Its chief claim to consideration, I think, is that it focusses attention at the start on the major subject of study in nearly all political geography—the present state-area as a geographic phenomenon.

This approach calls for a descriptive and interpretive analysis of the external and internal structure of the state-area, considered as a geographic object. The items are familiar: externally—size, shape, location, and boundaries; internally, the regional breakdown in natural regions, cultural regions, regions of different kinds of people, and the location of the capital.

This is almost pure morphology, and therefore static and dull. I am not surprised that no other student, so far as I know, has seen fit to use this outline. It does represent a method or system, but not one that seems likely to produce significant results.

Just what is it that is wrong with this morphological approach? Similar approach led I suppose to successful results in geomorphology, possibly in some other branches of geography. In certain fields, however, I think we would find it did not. As long as agricultural geography was tied down to the measurement of crops

[10] Similar statements of uncertainty regarding the place of geomorphology in geography, though expressed as a definite refusal to pass judgment (in *The Nature of Geography:* 423–424) have led some readers to suppose that I would exclude that subject.

[11] Russell, *op. cit.*, p. 11.

[12] Richard Hartshorne, "Recent Developments in Political Geography," *op. cit.*, pp. 943ff.

and fields, ignoring the functioning of farms as organized units of production, we were prevented from making significant advances. Likewise in manufactural geography, or in the geography of cities, the morphological approach often led to results far less significant than the study of functions.

Whether or not you agree with me on that, I think you will agree that the significance of state-areas in geography is to be sought far more in their functioning than in the morphology in itself. A school child may be interested, or amused, by the peculiar elongated shape of Chile on the map or the fact that it adds up to a larger size than France, but this interest is not on the same level as our direct interest in the form and size of Mount Shasta, say, in contrast with the Sierra Nevadas.

In a review of certain works in German political geography, Bowman once poured ridicule on the elaborate detail of morphological analysis, the detailed classification of state-areas by size and shape leading, sofar as he could find, to no significant conclusions.[13]

In other words, there is a certain fallacy in the comparison of a state-area with a landform. As a definitely organized section of land, a state-area is a real phenomenon, but it is not an object as a mountain is an object. It is not of "direct importance to areal differentiation," rather its place in a geographic study is due to "its indirect importance through its causal relation to other phenomena."[14]

The morphology of a state-area, I conclude, is significant primarily as it effects the functions of the state. If that is true, aren't we putting the cart before the horse in starting with the details of morphology in order in each case to look for significant relations to functions? I suggest that this is another example of our inheritance in geography in general, which leads us to look first at the physical environment and then attempt to draw conclusions about its significance for human relations.

So I suggest that we start with the functions of politically organized areas, and that we maintain this procedure throughout.

LIMITATION IN SCOPE OF THIS PAPER

In confining our attention to politically organized areas, I do not mean to assert by implication that there are not other political phenomena of concern to the geographer. Wright's classic study of the areal differentiation in voting habits of the American people is a highly significant contribution to a full understanding of the geography of this country.[15] Wigmore and Whittlesey have examined the areal distribution of different legal codes over the world.[16] If such studies are

[13] In *Geographical Review,* XVII (1927) : 511–512.

[14] *Nature of Geography,* p. 464.

[15] John K. Wright, "Voting Habits in the United States," *Geographical Review,* XXII (1932) : 666–672.

[16] John H. Wigmore, "Present Day Legal Systems of the World," *Geographical Review,* XIX (1929) : 120; Whittlesey, *The Earth and The State,* pp. 557–565.

valuable contributions to geography, as I think they are, it would be pedantic, at this stage of our development at least, to discuss whether they form a part of an integrated field of political geography or are to be classified in some other branch, such as social geography. Suffice it to say that a distinct type of problem is presented us in the study of the geography of politically organized areas and I will therefore confine myself to that type of problem.

There are of course many varieties and different levels of politically-organized areas. If one were studying certain areas of Africa or Asia at an earlier period of history, one would be primarily concerned with the very loose form of territorial organization effected by tribal units. In a future, we trust better, world, the geographer may be concerned with the political organization of large international territories—ultimately, one hopes, of the whole world. In the present world, however, there are but two types of politically-organized territories, which together cover theoretically the entire inhabited world and are of transcendent importance—namely, the areas of the independent, sovereign states and those of dependent countries, whether called colonies, protectorates, or possessions, which are organized in greater or less degree by members of the first group, the imperial states. (This statement intentionally overlooks the problem of defining the actual status of contries at present disorganized, like China, or those whose independence from outside control is debatable.) The uninhabited oceans, together with Antarctica, do not constitute units for study under our major heading because they are not politically organized. Their use and control however will present us with problems in considering the relations among the politically organized areas.

There is of course a place for the geographic study of politically organized areas of lower levels—the subdivisions of states. The relationship between the units at different levels is not however comparable to that in non-political regional geography. A sub-region of the Corn Belt may include all the functions found in the Corn Belt, and its validity as a region is independent of the larger region. In contrast, the subdivisions of states—whether provinces, departments, counties, or townships—are generally created by the state and are specifically excluded from certain political functions performed for them by the state of which they are a part. This statement must be qualified in significant, but on the whole minor, degree in respect to the autonomous units of federal states—the States of the United States, or Australia, or the Provinces of Canada.

Units of political organization at a higher level than the sovereign states include the empires that have been organized individually by certain of those states. Organizations of territory including more than one sovereign state have hitherto been represented only by the British Commonwealth, but both France and the Netherlands are now attempting to construct similar organizations. Finally students are not limited to what exists; we are free to use our imagination to study the potential basis for other larger units—whether an Arab union, a Western European Federation, a North Atlantic Union, or a world union.

For the purposes of this paper, I wish to focus attention solely on one type of

political area—the sovereign state, even though that ignores the large part of the world that is organized in units dependent on outside sovereign states.

My method of procedure may give the impression of a second major limitation —that I am concerned only with the regional approach in political geography—the study of the individual states—that I ignore the systematic approach. Other students have urged that we should start with the systematic approach, that we must first establish generic concepts, precise terminology, and general principles which then can be applied to specific, regional, cases. I submit that the history of development of geography in general demonstrates that we must do both simultaneously and that, like both Ritter and Humboldt, we must start with specific and actual cases.[17] It is only in the attempt to make analyses of specific regions that we can determine what are the specific topics that need to be examined systematically for all states in order to yield generic concepts and definitive terminology. Failure to follow this procedure in the past has led, by deductive reasoning to *a priori* principles that have not stood the test of comparison with reality.

Even when we have established the significant generic concepts, we should not be over-sanguine of the possibilities of establishing general principles in political geography. In other branches of geography we deal with units—whether landforms, farms, factories, or cities—of which there are thousands or even millions, many of them very much like each other in character and purpose. The state units of political geography number less than one hundred in the world, and each of them is notably different from all the others. By dipping back into past history we may add a few score more cases, but in doing so we run the danger of carrying back assumptions of motivations and processes that may be valid today but not in the earlier historical framework. More than in any other branch of geography therefore we are handicapped in developing scientific principles, are restricted to the consideration of unique cases.[18]

PRACTICAL VALUE?

One final statement on the purpose of this paper. Will it provide a method by which geographers may undertake studies directed to the solution of the great critical problems facing the world today? Most certainly geographers should be urged to apply their training and knowledge to the solution of these problems in all cases in which that training and knowledge is adequate to aid more than it hinders. But let us not deceive ourselves, for we will deceive few others. The major problems that face the world today are not problems in political geography; and fortunately so. For our training and knowledge in this field are still far from adequate to prepare us to tackle with assurance any of its major practical problems.

At the end of the First World War a major problem facing the world did fall right in our field—the problem of reorganizing the territorial division of Europe

[17] Cf. *Nature of Geography:* 54–57, 72–74, 79–80.

[18] For discussion of this problem in general see *The Nature of Geography:* 378–386, 431–434, 446–451.

on a basis that would make it possible for the many nationalities of that continent to live in productive harmony. The geographers who were called upon to assist at that time,[19] however much they could contribute of factual knowledge, were drastically handicapped by immaturity of thinking in political geography.

If today we must leave to others the solution of the problem of the atomic bomb and the problem of Communist Russia, we must also anticipate other crises ahead. When the need comes for a soundly developed science of political geography, we should be prepared to offer it.

I do not mean to say that political geography has at present no value in public affairs. We all have the constant opportunity, in teaching students and adults, to contribute to a wider understanding among thinking people concerning the nature of the world we live in and its international problems.

Further, those of us who have attained specialized knowledge and understanding of particular foreign areas of concern to this country may be called upon to offer both information and advice to our government. We are rightly proud of the fact that during and since the war many of us have been called upon for such service. It will be a great misfortune, not only for us, but for our country if geographers are prevented from contributing to students, the public, and the government the maximum of objective knowledge and of sincere and loyal counsel on foreign countries. But insofar as we geographers are able to contribute to the problems of American foreign policy, we find ourselves—like our colleagues in other social science fields—exposed to the danger of attack from political demagogues who find in any divergence of opinion from their own a sign of disloyalty to the state. We cannot foresee where the blind lightning of ignorance will strike, but must recognize that such attack on any one of us is attack on the freedom and integrity of all our profession.[20]

At the same time, the freedom we require as scientists carries special obligations, greater than those of ordinary citizens. Amateurish ideas or foolish proposals from men of no standing may do little harm. But when we write as professors and as geographers, the public presumes that we speak with some authority and they cannot know how little that authority may be in the field of political geography. We must recognize that, as long as our knowledge is as unorganized as it is in this field, and commonly without discipline, some of us may contribute only misunderstanding. In particular, the publication in critical times of misinformation, or of irresponsible recommendations purporting to represent more than the personal views

[19] See "War Services of Members of the Association of American Geographers," *Annals of the Association of American Geographers,* IX (1919): 53–70. A list, probably incomplete, of European geographers brought to Paris is given in Richard Hartshorne, "Recent Developments in Political Geography," *op. cit.,* p. 791.

[20] If to any future readers the pertinence of this paragraph is not clear, they may count themselves fortunate for living in a better era. Any who are historically minded may find the pertinent connection by looking to the front pages of almost any American newspaper for any day during the month of March, 1950.

of the author, or of such a character as to arouse animosity in foreign countries can do serious damage to this country—as we learned during the last war.[21]

We may have produced no atom bombs in political geography, but the field is nonetheless strewn with dynamite—it is no place for sophomores to play with matches. Fortunately, we appear to have escaped the danger of repeating, in American terms, the crime of those of our colleagues in Germany who were responsible for the dangerous doctrines of geopolitics.[22] But we will be exposed to similar dangers until the foundations of our knowledge in this field are on a much firmer basis than appears now to be the case.

Only then will our contributions to public thinking be more than additional small voices entering the general argument. The function of scientific learning is to establish knowledge on such firm foundations that argument disappears, and acceptance becomes relatively enduring. This we can accomplish only the long, hard way. We must get at the fundamentals; lay the groundwork for a solid structure of knowledge, on the basis of which we may hope one day to arrive at applications of sound value in the solution of actual problems.

ANALYSIS OF THE POLITICAL GEOGRAPHY OF A STATE: INTERNAL

I propose, as stated earlier, to consider the central problems of political geography in terms of the functions of state-areas. What comes first? The fundamental purpose of any state, as an organization of a section of land and a section of people, as Ratzel first put it, is to bring all the varied territorial parts, the diverse regions of the state-area, into a single organized unit.

What does the state attempt to organize, in all regions of the state-area?

In all cases, it attempts to establish complete and exclusive control over internal political relations—in simplest terms, the creation and maintenance of law and order. Local political institutions must conform with the concepts and institutions of the central, overall, political organization.

In many social aspects—class structure, family organization, religion, and education—a state may tolerate considerable variation in its different regions. But because of the significance of these factors to political life, there is a tendency—in some states a very marked effort—to exert unifying control even over these institutions.

In the economic field, every modern state tends to develope some degree of

[21] The evidence demonstrating that an article in "political geography" published in a popular American magazine caused serious repercussions in several foreign countries, both allied and neutral, is still classified material in state department documents or in confidential statements of one of our ambassadors.

[22] It should be added that the men primarily responsible for the development of Geopolitik were for the most part not men of high standing in German geography, see Carl Troll," Geographic Science in Germany, 1933–1945," *Annals of the Association of American Geographers*, XXXIX (1949): 128–135. Of the dangerous tendencies of geopolitics, American students were warned—in what appears now as much too cautious a manner—in Richard Hartshorne, "Recent Developments in Political Geography," *op. cit.*, pp. 960–965.

unity of economic organization. At the minimum, it establishes uniform currency, some uniformity in economic institutions, and some degree of control over external economic relations. Beyond that, states of course vary greatly in the degree to which all aspects of production and trade—price and wages levels, etc.—are placed under uniform control.

Finally, and most importantly, because we live in a world in which the continued existence of every state-unit is subject to the threat of destruction by other states, every state must strive to secure the supreme loyalty of the people in all its regions, in competition with any local or provincial loyalties, and in definite opposition to loyalty to any outside state-unit.

Throughout this statement of the organization of the state-area as a unit, the geographer is primarily concerned with emphasis on *regional* differences. The state of course is no less concerned to establish unity of control over all classes of population at a single place. In political geography, our interest is in the problem of unification of diverse regions into a single whole; the degree of vertical unification within any horizontal segment concerns us only as a factor aiding or handicapping regional unification.

Parenthetically, we may also note the ways in which this primary function of the state affects the general field of geography. Land-use, industrial development, trade, and a countless list of social aspects of human geography in any region will differ in greater or less degree as a result of the efforts of the state in which it is included to control its development as part of a single whole. Only the peculiarity of geographic study in such a large country as the United States, where we are usually forced to do most of our work within the territory of our single state, has permitted us to study geography as though we could ignore political geography.

Our analysis of the primary function of any state leads directly to the primary problem of political geography. For no state-area constitutes by the nature of its land and people, a natural unit for a state, in which one merely needs to create a government which shall proceed to operate it as a unit. The primary and continuing problem of every state is how to bind together more or less separate and diverse areas into an effective whole.

For the political geographer, this presents a wide range of specific problems for analysis. In every state area, larger than such anomalies as Andorra or Liechtenstein, the geographer finds: (1) regions that are more or less separated from each other by physical or human barriers; (2) regions that in greater or lesser degree diverge in their relations with outside states; and (3) regions that differ among themselves in character of population, economic interests, and political attitudes. Let us look briefly at each of these types of problems.*

* Throughout this discussion the term "region" is used to indicate merely an area in some way distinct or different from neighboring areas, with no implication that a region is a unit. See *The Nature of Geography op. cit.*, Chap. IX.

Centrifugal Forces

Geographers are familiar with the effect of particular types of physical features in handicapping communication between regions. Semple and others have described for our own early history the political consequences of the forested Appalachians and later of the mountain and desert barrier of the west. Whittlesey's study of the Val d'Aran depicts in detail the problem in that bit of Spain north of the Pyrenees.[23] In most modern states, however, these problems have largely been overcome by the development of the telegraph and the railroad. They continue of importance however in parts of the Balkans, in the highland states of Latin America, and in China.

Since state-organization requires communication not only from one region to the next, but from a central point to each peripheral region, distance itself is a centrifugal factor. Obviously distance within a state depends on its size and shape. Size and shape are significant to the state in other, quite different respects, but I suggest we wait until we have determined that in our analysis, rather than attempt to proceed deductively from size and shape to consequences.

Of human barriers, the most common is the absence of humans. Uninhabited or sparsely inhabited areas were, until recently, difficult and dangerous to cross. It was primarily on this account that relatively low mountains, in central Europe or the Appalachians, long functioned as dividing zones. Even in the Alps, the problem of surmounting high elevations was less serious, in the Middle Ages, than the difficulty of securing supplies along the way and the ever-present danger of attack from "robber barons."

Further, the presence of such relatively empty areas created, and still creates, a feeling of separation in the regions on either side. Both on this account and because of distance, oceans continue to function as the strongest separating factors, other than the Arctic ice, even though they have long been crossed with relative ease.

France has first inaugurated the interesting experiment of incorporating transoceanic areas into the organization of its state. Its West Indian islands and the island of Reunion in the Indian Ocean are now departments of metropolitan France, sending delegates to its national assembly. We may be about to do the same with Hawaii.

Perhaps the most difficult barrier to overcome is separation by a zone populated by a different people, especially an unfriendly people. The Germans have apparently convinced the world that the separation of East Prussia by the Polish Corridor was an experiment that is never to be repeated. (They overlooked the fact that there were not one but two alternatives to that device.)[24]

Serious difficulties may arise for a state if any of its regions have closer rela-

[23] Derwent Whittlesey, "Trans-Pyrenean Spain: The Val d'Aran," *Scottish Geographical Magazine*, 1933: 217–228.

[24] Richard Hartshorne, "The Polish Corridor," *Journal of Geography*, XXXVI (1937): 161–176.

tions with regions of outside states than with those within the state. This is commonly the case where a boundary has been changed so that it now cuts across an area formerly within a single state. The partition of Upper Silesia, in 1922, presented a particularly intense case.[25] But there are many cases, not dependent on boundary changes, in which a region has closer connections, particularly economic connections, with regions of other countries than with other regions of its own state. We are familiar with the political importance of this factor in each of the major regions of Canada, each more closely related in certain respects with the adjacent areas of the United States than with the other regions within the Dominion. In some cases mutual interdependence among the regions of the state-area is less than the dependence of individual regions on remote, overseas countries. This is a major problem of the Australian Commonwealth, in which each state unit is primarily dependent on separate trade with Great Britain. In Western Australia, this factor, together with notable physical and human separation has led at times to demand for secession from the Commonwealth. Northeastern Brazil offers a somewhat similar problem for study.

The geographer however must beware of drawing conclusions from the physical map, or, on the other hand, of assuming that an economic situation to which we are accustomed represents a "normal" development in economic geography independent of a particular political framework. Consider southern California, separated by thousands of miles of desert and mountain from the main body of the United States, facing the Pacific highway to densely populated lands of the Orient. And yet which region of the United States is more completely bound into the economy of the country as a whole?

All the previous examples are relatively extreme cases. In most instances the potentialities are highly flexible. The plain of Alsace, separated from the rest of France by the rugged heights of the Vosges, facing southern Germany across the narrow band of the Rhine flood-plain and easily connected with northern Germany by that navigable river—with which state does it fit in terms of economic geography? Surely the answer must be that in terms of modern technology all these features are of minor importance and in terms of the economic potentialities of the area it can be associated almost equally well in either the French or the German economic unit.

Separation of regions by barriers or by divergence of outside connections are commonly less important than the centrifugal forces that result from diversity of character of the population. To secure voluntary acceptance of a single common organization requires some degree of mutual understanding; obviously this is easier in a population homogeneous in character. Further, where regions differ in social character, the tendency of the state to force some degree of uniformity of social life meets with resistance. Thus the very attempt to produce unity may

[25] Richard Hartshorne, "Geographic and Political Boundaries in Upper Silesia," *Annals of the Association of American Geographers,* XXIII (1933): 195–228.

intensify disunity. Hungary, before 1918, was the classic example; since then Yugoslavia has been perhaps the leading, among several, successors.

What particular social characteristics may be important depends on the particular state. Everyone thinks of language and religion. I suggest, also, education and standards of living, types of economic attitudes and institutions, attitudes toward class and racial distinctions, and, especially, political philosophy.

For materials on these topics we look to that branch of geography that has been least developed—social geography. In most cases what materials we have provide only the raw data, the facts about the distribution of, say, religions or races, rather than the regional differences in social attitudes towards these facts; it is the latter that we need.

Thus, the fact that Alsace was predominantly Roman Catholic, like France but unlike most of Germany, was less important than the fact that its attitude toward the relation of church and state was similar to that in the German Empire of 1871–1918, and was in conflict with the anti-clerical attitude of the French Republic.

Racial differences, in the terms studied by the physical anthropologist, may be of no relevance to our problem. The distribution, percentage-wise, in the different countries of Europe, of blondes and brunettes, dolichocephalic versus brachycephalic —what does it matter? These facts have no reflection in social or political attitudes in those countries. Though standard material in most geographies of Europe, I submit that they have no significance to political geography, or for that matter, to geography in general.

In contrast, the United States is a country in which regional differences in attitudes of people toward the racial components of the regional group—as indicated by skin color—are of tremendous importance in social, economic, and political life. We have mapped and studied the underlying differences in racial composition,[26] but we have not studied the phenomenon itself—namely the differences in attitudes. We need a map, a series of maps, portraying different kinds and degrees of Jim Crowism in the United States. These I would rate as a first requirement for an understanding of the internal political geography of the United States, for in no other factor do we find such marked regional cleavages, such disruption to the national unity of our state. For geography in general, in one quarter of our country, these attitudes are fundamental factors in every aspect of the human geography, and are significantly related to its physical geography.

Geographers are more familiar with differences in economic interests, since these are more closely bound to the land. But these are seldom seriously disrupting to national unity. It is true that almost every modern state has experienced marked political tension between the divergent interests of highly industrial regions and those of still primarily agricultural areas. But these very differences tend to lead to interlocking, rather than competing, interests. Even when competing,

[26] Richard Hartshorne, "Racial Maps of the United States," *Geographical Review*, XXVIII (1938): 276–288.

economic differences, Marx to the contrary notwithstanding, are easier to compromise than differences in social and political attitudes.

Furthermore, the state is only in partial degree an economic unit. Since it is basically a political unit, the state necessarily imposes the greatest degree of uniformity in political life. Political attitudes are peculiarly inflexible. If a region is accustomed to one set of political concepts, ideals and institutions—most especially if its people feel that they have fought in the past to establish those political values—it may be extremely difficult to bring them under the common cloak of a quite different system. Even where regions formerly in separate states have voluntarily joined together to form a state, on the basis of common ethnic character—for example the three Polish areas in 1918, or the Czech and Slovak areas—the marked difference in past political education led to difficult problems.

In times and areas of relatively primitive political development such factors were no doubt of minor importance. In long-settled areas of relatively mature political development they may be of first importance. The classic example is, again, Alsace. Thanks particularly to the French Revolution, the people of that province had become strong supporters of political concepts, ideals, and institutions that could not be harmonized within the semi-feudal, authoritarian monarchy of Hohenzollern Germany.

Conversely, one may understand, on this basis, the negative reaction of the Swiss in 1919, to the proposal that the adjacent Austrian province of Vorarlberg should be added to their state.[27]

Centripetal Forces

The preceding discussion of political attitudes points to an essential ingredient that has been lacking in the discussion up to this point. We have been considering a variety of centrifugal factors in the regional geography of a state-area which make it difficult to bind those regions together into an effective unit. In considering how such difficulties may be overcome, we have not asked whether there was any force working to overcome the difficulties, anything tending to pull these regions together into a state.

This, omission I suggest, has been the single greatest weakness in our thinking in political geography. If we see an area marked clearly on both physical and ethnic maps as suitable for a state, but which for many centuries was not integrated as a state—as in the Spanish peninsula, the Italian peninsula, or the German area—we cudgel our heads to find factors in its internal geography that will explain the failure. We forget that before we speak of failure, we must ask what was attempted.

The Italian peninsula, together with the northern plain attached to the mainland but isolated by the Alps, with a settled population speaking approximately a common tongue since the Middle Ages, has offered one of the most obvious geo-

[27] As reported to me years later by two geographers: Lawrence Martin, who had been sent to Switzerland by President Wilson to sound out the Swiss reaction, and Peter H. Schmidt, of St. Gallen, with whom he had discussed the proposal.

graphic units of Europe for the development of a state. Yet Italy, as an Austrian minister jeered, was only a geographic expression; there was nothing that could be called even the beginnings of a state of Italy. For no one of importance had any idea of producing an Italian state and had anyone tried, his purpose would have shattered in conflict with two opposing ideas: one, the concept of the Papal States, the secular control of mid-Italy by the Pope in order to secure his undivided domination of Rome as the spiritual capital of Western Christendom; the other, the concept of a single great empire in the heart of Europe, extending from northern Germany to northern Italy. Only after the power of these centuries-old ideas had been irrevocably destroyed by the ferment of the French Revolution was it possible for any Italian leader to consider seriously the unification of Italy.

One of the concepts that prevented integration in Italy is likewise the key to the failure of medieval Germany to develop a unified state, at the time when the kingdoms of France and England were being effectively established. For centuries the persons holding the title of King of Germany, and whatever opportunity that might give, were far more affected by the higher title of Emperor. Inspired by the grander idea of reincarnating the empire of Rome, they fought to build a state straddling the Alps, uniting many different peoples. The sacrifices made in the vain attempt to accomplish the greater idea destroyed the possibility of achieving the lesser when later emperors finally were reduced to considering German unity.

The fact that a country has a name and a government, that an international treaty recognizes its existence as a state and defines its territorial limits—all that does not produce a state. To accomplish that, it is necessary to establish centripetal forces that will bind together the regions of that state, in spite of centrifugal forces that are always present.

The State-Idea

The basic centripetal force must be some concept or idea justifying the existence of this particular state incorporating these particular regions; the state must have a *raison d'etre*—reason for existing.

Although ignored in much of the literature of political geography, this is not a new thought. Ratzel defined the state as a section of land and a section of humanity organized as a single unit in terms of a particular, distinctive idea.[28] Maull, among other German geographers, has discussed the concept at some length.[29] It was presented to this Association a decade ago.[30]

At the primitive level, Ratzel explained, this idea may be no more than the will of a ruler to which, for whatever reasons, all the regional parts through their local leaders grant their loyalty. In such a case, as in the empire of Charlemagne or that of Ghengis Khan, the state may endure hardly longer than the lifetime of the

[28] Friedrich Ratzel, *Politische Geographie*, 3rd ed., Munich and Berlin 1923, pp. 2–6.

[29] Otto Maull, *Politische Geographie*, Berlin 1925, pp. 112–115.

[30] Richard Hartshorne, "The Concepts of 'Raison d'Etre' and 'Maturity of States'," (abstract), *Annals of the Association of American Geographers*, XXX (1940): 59.

individual ruler. In the attempt to perpetuate the binding idea of loyalty to a personal ruler, there evolved the concept of hereditary monarchy. Where that succeeded, however, we find there was always something more—politically-minded people in the various parts of the kingdom came to regard the state, for reasons independent of the monarch, as representing something of value to them. Today the monarchical institution is safe only in those states in which the monarch has exchanged the active power to rule for the passive role of personification of the national heritage.

To be sure, a state in which the original idea has lost its validity will not fall apart at once. The forces of inertia, vested interests, and fear of the consequences of change may keep it going more or less effectively for some time. But inevitably a structure that has lost its original *raison d'etre,* without evolving a new one, cannot hope to stand the storms of external strife or internal revolt that sooner or later will attack it. For when that day comes, the state, to survive, must be able to count upon the loyalty, even to the death, of the population of all its regions.

It is not mere coincidence that the terms I have been using came to me from a Viennese geographer, in his analysis of the failure of the Habsburg monarchy. Unless Austria-Hungary, Hassinger wrote after the First World War, had been able to discover and establish a *raison d'etre,* a justification for existence, even without the calamity of the war, it could not long have continued to exist.[31]

Those states are strongest, Ratzel had concluded, "in which the political idea of the state fills the entire body of the state, extends to all its parts."[32]

What does this mean for our study of the political geography of a state? It means, I am convinced, that before we can begin to study the problems presented by the centrifugal forces I have previously outlined, we must first discover the motivating centripetal force, the basic political idea of the state. Under what concept, for what purposes, are these particular regions to be bound together into one political unit, absolutely separated from every other political territory?

Does this seem too remote from geography? Too much like political science? The student of geography of climates must understand the nature of air-masses, as analyzed by the meteorologist. We cannot intelligently study the geography of soils until we have grasped the soil scientist's analysis of soil types. In agricultural geography it is not sufficient, we now know, to study crops and animals; we are concerned with the farm unit of organization of crops from fields, livestock in barns and pasture, all directed toward ultimate production of food for the farmer and products to be sold from his farms. We are not ready to begin the study of farm geography until we have analyzed the farmer's purpose—the idea under which his piece of land is organized.

Geographers usually know quite a bit about farming, so they may know beforehand what is in the farmer's mind, or perhaps they can infer that from observation

[31] Hugo Hassinger, in R. Kjellen and K. Haushofer, *Die Grossmächte vor und nach dem Weltkriege,* Berlin and Leipzig, 1930, p. 34.

[32] Ratzel, *op. cit.,* p. 6.

of the visible facts—the fields, silo, corncrib, or cow-barn. But to know for certain, you must ask the farmer.

Whom shall we ask concerning the idea of the particular state? Obviously one must go to those who actually operate the state in question. This is not so easy as in the case of the farm or factory. A modern state is an organization operated, in greater or less degree, by all of the politically-minded people included in it—ideally its entire adult population.

One might logically suppose that geographers should be able to find the answer to this question in studies in political science. Unfortunately, from our point of view, political scientists seem to have concerned themselves solely with the idea and purpose of the generic state—the purposes, that is, that are common to all states. This ignores the very thing that is of direct concern to the geographer—namely the idea that is distinct for the particular state in contrast with that of other states, that which makes for significant differences from country to country. Perhaps that means that it is logically a problem for the geographer.

In any case, unless we can find the answer to this fundamental question in the works of other students—perhaps of the historians if not the political scientists—we are apparently forced to work it out for ourselves. We must discover and establish the unique distinctive idea under which a particular section of area and of humanity is organized into a unit state.

I realize that the problem is remote from the geographer's training and knowledge. But years of stumbling effort have convinced me that there is no circumventing it. Until we can determine for any particular state the idea under which it is organized, we shall have no basis on which to analyze its political geography; we shall not have started on the significant contribution that geography can make to the study of states.

Perhaps we exaggerate the difficulty of the problem because it is unfamiliar. To pin down precisely the particular idea on which any state is based is certainly very difficult, but study of the essential historical documents may enable one to come fairly quickly to a rough statement sufficiently close to the mark to be usable.

Let me give you a case in which one of my advanced graduate students[33] had particular difficulty—the state of Iraq. He finally arrived at something like this: The idea of an Iraqi state sprang from two factors: (1) the recognition by the Great Powers of the special strategic and economic significance of the Mesopotamian region, and (2) the need to provide a *pied à terre* for Arab nationalism banished from Syria. On the basis of these two considerations there was established a territory embracing the settled Arab region of the Tigris-Euphrates plain, together with adjacent but dissimiliar regions of mountain and desert tribes, the whole to be developed as a separate Arab state.

You note that the idea of this state was a compound of purposes and those, external: foreign diplomacy and transported nationalist fire. That was the case in 1919. One would need to determine whether the Iraqi have since evolved a truly native concept.

[33] Mr. John Paterson in an unpublished manuscript.

In much older states, we may expect to find that an indigenous *raison d'etre* has evolved that may have little or no relation to the original genesis. To determine the distinctive idea of such a state, therefore we must study the current situation, rather than the remote past. In the well-developed modern state politically-minded people in all regions of the state-area are conscious of their loyalty to the state and have some common understanding, even though not clearly phrased, of what that state means to them. In such a case, we may recognize, I think, the existence of a *nation*—as something distinct from the state itself.

The Concept of Nation

At what I choose to call the more primitive level, the concept of nation represents simply a feeling of kinship, of belonging together, an extension of the concept of family, more properly an extension of the concept of the in-group versus outsiders. While usually expressed in terms derived from the language of the family —terms like "blood," "breed," "race," etc.,—it is in reality less of *kin* and more of *kind*—similarity of cultural, rather than of biological characteristics.

The direct significance of this elementary concept of nationality to the state lies first in the fact that all peoples tend to prefer government by those of their own kind, even if inefficient or unjust, rather than any government over them by foreigners, however beneficient. The second reason is that the individual seeks to identify himself with his state; nationality, someone said, is "pooled self-esteem." Indeed the state is sure of the loyalty of the people only if there is such identification. Each citizen must feel that the state is "his" state, its leaders, "his" leaders. For this to be possible he must feel that those who operate his state, who govern him, are people like himself.

The main purpose of a state however is not the furtherance of a particular language or culture. Its main purposes are political. The values over which it has complete control are political values. As the people in a state mature in positive political experience, their feeling of belonging together becomes less dependent on the such obvious similarities as common language, and more dependent on common adherence to particular political concepts, ideals, and institutions. It is for the sake of these that they are ready to devote their ultimate loyalty to their state.

It is in terms of these concepts, more specifically defined to fit the particular case, that we can explain the evolution of a Swiss nation out of a collection of many small regions, using four different languages, separated by imposing physical barriers, with sharply diverging outside connections, and originally brought together by a series of historical accidents, including force of arms.

In sharp contrast to Switzerland, and the other small states of long historic evolution in western Europe, is the situation in most of the small states of Eastern Europe. These owe their existence primarily to the opposition of individual nationalities, based on cultural kinship, to alien rule, but the geographic distribution of the nationalities made impossible a system of states each confined to the single nationality. In the relatively short period of their independent existence as states, none have been able to evolve political values and institutions commanding national

loyalty on a higher level than that of cultural kinship—i.e., they have not been able to bring the national minorities, present in almost every case, into membership in the nation.

It is difficult to summarize the analysis of the concept of nation into a single statement, but, for those readers who wish a definition, I would suggest that a "nation" may be defined as a group of people occupying a particular area who feel themselves held together in terms of common acceptance of particular values that are of such prime importance to them that they demand that their area and people should be organized in a distinct state, as the political agency by which those values may be preserved and furthered.[34]

The relations between the state and the nation are mutual and manifold. In the older national states of western Europe, the nation, as Vidal de la Blache has pointed out, was in no small part the product of the state. William of Normandy, as successor to the Anglo-Saxon kings, established a relatively effective state, the kingdom of England, later expanded to include Wales. In the process, however, whatever degree of Anglo-Saxon nation had developed was destroyed in the conflict with the Norman French conquerors. But in the course of centuries the state created a new nation, the English. Although most of the kingdom came to have a common tongue, the concept of the nation was accepted in areas of the state beyond the limits of the English language—notably in the Celtic highlands of Wales. The subsequent union of two states, England and Scotland, each of which had evolved a distinct national character, led in time to the development of a larger, single, British nation. On the other hand, the greater part of the island of Ireland, though included in the English kingdom for centuries and largely converted to English tongue, never became part of the British nation.

Likewise there was no French nation—nor even a common language of what we think of as the single French people—until centuries after the kings of France had established more or less effective unity over the state area we call by that name. Or, to take a different kind of example, the French-speaking cantons of Lausanne, Geneva, and the Valais were included in the Swiss state long before their populations came to regard themselves as part of the Swiss nation, and the process of becoming part of that nation involved no lessening in their adherence to the language of France rather than the Germanic language of the greater part of Switzerland.

In Norway and Eire the relation of state and nation was reversed: the nation antedated and demanded the state. In the case of Poland we see a nation, originally produced in part by the long history of a state, which survived the total destruction of that state and more than a century later demanded the restoration of the state.

The story of Austria-Hungary is particularly illuminating. The Habsburg monarchy did not disintegrate directly because of the large number of different

[34] This statement is a product of exchange of views with Professor Hardy Dillard, Dean of the Law School, University of Virginia.

ethnic regions of which it was formed, but rather because that state never evolved political concepts or institutions that could gain acceptance, not to say enthusiasm, in its diverse regions.[35]

For an example in current process, consider Yugoslavia. Ignoring for the moment the German, Magyar, and Albanian districts, three regional groups—Serbs, Croats, and Slovenes—voluntarily joined to form a state. Though based on close relationship of South Slavic language, the main motivating impulse was opposition to foreign rule by German Austria and Magyar Hungary. In the hope of creating a nation they invented a new national word—Yugoslav. But finding no positive political concept for their state—or failing to make real the concept of a federation of related but different groups—the state became increasingly an imperial expansion of the dominant Serbian group. In consequence, under the force of outside attack by Germany, it broke internally. Again, however, the common suffering under foreign tyranny brought increased unity of feeling among the three Slavic groups. This rise of Yugoslav nationalism however was split by the socio-political conflict of communist revolution, dividing the country by classes, rather than by regions. If communism had the capacity to win over the adherence of all the people of an area to its faith, the country might attain national unity on that basis—but no doubt only to be merged in the larger unity of a Communist Eastern Europe. Today, dictatorial orders from outside have again awakened Yugoslav nationalism. In the struggle against alien rule from Moscow, the regional nationalities may conceivably be merged into a genuine Yugoslav nation—unless the class conflict inherent in communism destroys the possibility of unity of the people of even the smallest area.

The United States, one of the most striking and intense of national states, presents still a different type. The nation antedated the state, but was itself originally only a part of an older British nation that had been developed by the United Kingdom. Separated from its then larger part by the Atlantic Ocean, the American sector became a new nation, brought to high temper in the revolutionary fires of the War for Independence. But this new nation found itself then not organized in one state, but in thirteen. The Constitutional Convention of 1787 was brought together to create a single state organization to serve a nation recognized as already in existence.

One further ramification may be briefly suggested. Once the concept of a nation has been well established within an area, its spread outward is not necessarily limited by the frontier of the state-area. Thus, when the French national army in 1792 entered the French-speaking regions of Savoy, a region that had never been a part of the French kingdom, they found that the national concepts of revolutionary France had preceded them. The Savoyards, who had never belonged to a nation, but had merely been subject to a feudal state lacking in political ideals, were pre-

[35] Richard Hartshorne, "The Tragedy of Austria-Hungary: A Post-Mortem in Political Geography," (abstract) *Annals of the Association of American Geographers,* XXVIII (1938): 49.

pared to regard themselves as part of the nation of France. It would be interesting to compare their attitude with that of the French-speaking areas of Switzerland and Belgium which were likewise conquered at that time by the French armies.

The Concept of the "Core Area"

These considerations should enable us to look more critically than has hitherto been done, I believe, at the concept of the core area of a state. Commonly we look at France, England, Scotland, or Sweden—the classic cases in which the core area appears so important, whether in the history of development of the state-area or that of the evolution of national unity. Or we contrast the situation in those countries with that in Spain, where the central area, the Meseta, is relatively weak. But consider the territory of the old kingdom of Hungary, where the core-area of Magyar population in the rich plain of the Mid-Danube would appear to provide the natural focus for surrounding smaller lowlands and mountain highlands. While this situation no doubt facilitated conquest and organization of the large area included in the kingdom, national unity was never achieved.

In contrast the many scattered nuclei of the Norwegian people, connected only by sea, provided the basis for national unity and a modern state. In the United States, no one area ever functioned as a single core, but rather the association of a large number of regions, closely interrelated in an ever-shifting balance, forms the basis for effective unity.

Clearly we must draw negative as well as positive conclusions. A core area is neither sufficient nor essential to the evolution of a nation or state. What is essential is a common idea that convinces the people in all the regions that they belong together. Historically in certain states a core area *may* have played a major role in spreading that idea to other regions and it *may* continue today as in France, Argentina, or Mexico, to focus the interest of the regions on itself as the center of what has become a functioning unit; but the common idea for a state may develop where no core area exists.

The Application of the State-Idea in Political Geography

Whatever is found to be the *raison d'etre,* the underlying idea of the state, it is with this concept, I submit, that the geographer should start in his analysis of the state-area. What use is he then to make of it?

His first concern is to determine the area to which the idea applies, then, the degree to which it operates in the different regions, and finally the extent of correspondence of those regions to the territory actually included within the state.

On this basis we may approach the most elementary problem in political geography—namely that of distinguishing within the legal confines of its territory, those regions that form integral parts of the state-area in terms of its basic idea, and those parts that must be recognized as held under control in the face of either indifference or of opposition on the part of the regional population.

The vast areas of the subarctic lands, whether in Alaska, Canada, Sweden, or the

Soviet Union, sparsely populated by primitive tribes, with a few scattered settlements of civilized peoples, are organized politically as though they were colonies of an outside state, even where there is no break in the extent of territory under the same flag. The same is true of tropical lowland areas, in almost all the Latin American countries. In most of the latter, these essentially unorganized territories constitute over half the total area officially credited to the country.[36]

A more difficult question for definition is raised in examining the areas of long-settled Indian population in the highlands of tropical America—both in Central American states and in the Andes. Are these areas of native language and culture to be considered as integral parts of states or are they not still colonial areas subject to outside control, even though the center of control is not in Spain but in the neighboring districts of Spanish-American culture?

A similar situation may be found in more highly developed countries. Thus during the centuries in which all of Ireland was recognized in international law as part of the United Kingdom, its greater part was certainly operated in fact as a subject area, distinct from the controlling state. Much the same may be true today of certain portions of the Soviet Union, notably the so-called republics of Central Asia—but the difficulty of determining the actual operations of the Soviet government make definite statement impossible. On the other hand, we have in the United States clear-cut though tiny relics of internal colonialism in the Indian reservations.

If the idea of the state is based on the recognition of the existence of a nation, then the major geographic question to consider is whether there is close correspondence between the area of the nation and that of the state. Are there regions within the state whose population do not feel themselves part of the nation? Are there regions of the nation that are not included within the state—the issue of irridentism?

It is not easy to measure the area to be included in a particular national group. In many cases we must approach the question indirectly. If we can determine the essential factors involved in the particular nationality, we may be able to measure the area over which each of these factors exists. On this basis we may establish certain areas that are clearly included in the given nation, and other areas that adhere in terms of some factors, but not in terms of others.

The entire area over which the nation extends, but in varying degrees of intensity, may then be compared with the area presently included in the state. We have thus determined not only the areal correspondence of state and nation, but also the regions in which the national character is partial rather than complete. We shall thereby have presented, in part in map form, the basic factors and relationships involved in the primary problem of political geography—the analysis of the degree to which the diverse regions of the state constitute a unity.

[36] For more complete discussion, with an attempt to map these areas see Richard Hartshorne, "The Politicio-Geographic Pattern of the World," *Annals of the American Academy of Political and Social Science,* CCXVIII (Nov. 1941) : 45 ff.

Internal Organization

At this point we reach one other problem for analysis—the relation of the internal territorial organization of the state-area to the regional diversities we have analyzed. Though all the regions of a state are clearly included under the state-idea, have complete loyalty to the overall concepts of the national unit, regional differences inevitably cause some differences in interpretation and implementation of those concepts.

If these differences are relatively minor, as in most of France or, I presume, in Uruguay, the regions may accept unitary government from a single central authority. If the differences are great, the attempt to impose such a uniform system may provoke opposition endangering the national unity. Since such regional differences are important in most countries, but most states attempt to operate under a uniform, centralized government, the number of examples of this type of problem is very large. Spain, at the moment, provides one of the most striking.

Certain states recognize openly the need to permit diverging interpretations of the overall concepts of that state and hence significant differences in the institutions and laws thereunder. This is the system of the federal state, of which Switzerland provides the oldest example, the United States the largest. In both cases, a notable degree of regional heterogeneity is guaranteed by the constitutional division of powers.

In this country we are at the moment engaged in one of our periodic crises in determining just how much social and political autonomy is to be permitted the regions that are crudely represented by our so-called States. This crisis, incidentally, causes the Congress of the United States to work for the social and political geographer, producing raw material useful to us in measuring differences in intensity of regional attitudes towards the facts of racial composition.

The possible ways of organizing the state-area are not limited to the unitary and the federal systems. The United Kingdom, for example, has evolved in the course of its long history a most complicated system under which Wales, Scotland, Northern Ireland, the Isle of Man, and the Channel Islands—each has a different degree of autonomy adjusted to its particular linguistic, religious, economic, and political geography.

In determining the method of state-organization of a country, the student must study the actual method of government, not merely the words written into a constitution. He will recognize that while the constitution of the Soviet Union grants on paper more independence to its member republics than is true of the individual States of this country, and even though it encourages and exploits a great variety of languages and folk cultures, in every other aspect of economic and political life it operates its vast area of radically different regions as a highly centralized, monolithic state.

ANALYSIS OF EXTERNAL FUNCTIONS

In a functional approach to the analysis of the political geography of a state, our first half was concerned with the internal problems of the state-area. The second

half is concerned with the external relations of the state-area to the other areas of the world, whether those are also organized as states, controlled by outside states, or unorganized. For convenience we may group these relations as territorial, economic, political, and strategic.

Territorial Relations

Under territorial relations we are of course concerned in the first instance with the degree to which adjacent states are in agreement concerning the extent of territory which each includes. Whether the area in question is large or small, agreement ultimately requires the determination of a precise boundary.

Of all the problems of international relations, these concerning the allocation of territories and hence the determination of boundaries are the most obviously geographic. It is no doubt for that reason that they have been the most common object of study by geographers. In the last two decades American geographers can point to notable progress in the development of generic concepts and useful generalizations, if not definite principles, concerning international boundaries.[37]

In much of this work however, we still tend to start on the wrong foot. In the initial classification of internal boundaries we have, as geographers, looked first at the physical character of the zones in which the boundary lines are drawn. This is not a classification of international boundaries, but rather of the features with which such boundaries are associated.

If we start with what we are studying—the state-areas—we can recognize the essential function of the boundary from its name: it is that line which is to be accepted by all concerned as *bounding* the area in which everything is under the jurisdiction of one state as against areas under different jurisdiction. In well-developed regions of the world it must be determined to the exact foot. (Consideration of the functions of a boundary zone, as an element of military defense, for example, is a separate question to be considered elsewhere.)

The first thing to know about an international boundary therefore is the degree to which it is accepted by all the parties concerned—i.e., the adjacent states and the population whose statehood is determined by the location of the boundary.[38]

Consider the following cases of international boundaries; the boundary between

[37] The following series is unusual in American political geography in that each derives much from the preceding studies and from earlier studies by European geographers: Richard Hartshorne, "Geographic and Political Boundaries in Upper Silesia," *Annals of the Association of American Geographers,* XXIII (1933): 194–228; *idem,* "Suggestion on the Terminology of Political Boundaries," *Mitteilungen des Vereins der Geographen an der Universität Leipzig,* Heft 14/15 (1936): 180–192; abstract in *Annals of the Association of American Geographers,* XXVI (1936): 56 f.; S. Whittemore Boggs, *International Boundaries,* New York, 1940; Stephen B. Jones, *Boundary-Making: A Handbook for Statesmen, Treaty Editors and Boundary Commissioners,* Columbia University Press, 1945.

[38] A consideration of a large number of international boundaries from this approach is given in Richard Hartshorne, "A Survey of the Boundary Problems of Europe," in *Geographic Aspects of International Relations,* C. C. Colby, editor, University of Chicago Press, 1938, pp. 163–213.

Great Britain and France (including the Channel Islands with Great Britain); that between France and Spain; that between Switzerland and Italy (including the Ticino boundary that reaches far down the Alpine slopes almost to the Po Plain); and, finally, the boundary between the United States and Mexico both east and west of El Paso. These run through radically different types of physical zones. Some correspond closely with ethnic divisions, others do not. But from the point of view of the primary function of an international boundary, all are in the same category, namely that of boundaries completely accepted as final by the states themselves and the people of the border areas.

In a different category is the Franco-German boundary (considered as of 1930). Though this was fully accepted by France and officially so by Germany in the Treaty of Locarno, one could not assume that the German leaders intended that acceptance to be final and by imprisoning certain of the local leaders in Alsace the French government demonstrated its lack of faith in the complete acceptance by the Alsatian people of their inclusion in the French state.

Still different is the case of the German-Polish boundary of the inter-war period, which neither state accepted as more than a temporary division of territory claimed by both sides.

Where boundaries run through primitive, essentially colonial, regions which at present have very slight productive value but offer possibilities for future importance, we may need to recognize a different set of categories. Thus we may find cases in which for a time the states concerned, while not committing themselves to an ultimate boundary, raise no question concerning the line lost in the wilderness, but may at any moment challenge, with the force of arms, the line that had apparently been accepted.[39]

If we first establish such a system of classification, based on the primary function of boundaries, and only then seek to determine to what extent those of particular categories are based on different types of features—e.g., on natural divides of population, on ethnic divisions, or on boundaries antecedent to state development—we may hope to avoid one of our more common forms of geographic determinism.

The second question concerning any international boundary (whether or not it is fully accepted) is the degree to which its bounding function is maintained by the bordering states, the degree, that is, to which all movements of goods and persons across the line are effectively controlled by the boundary officials. In examining that, the geographer will of course observe the ways in which the control is made easier or more difficult by the character of the zone through which the boundary line is drawn.

A special aspect of boundary problems emerges where the territory of a state reaches to the sea. Though open to use by all, the seas are in fact little used by

[39] Cf. Robert S. Platt, "Conflicting Territorial claims in the Upper Amazon," in *Geographic Aspects of International Problems*, C. C. Colby, editor, University of Chicago Press, 1938, pp. 243–278.

anyone. Hence, it is sufficient for most purposes to define the boundary simply as following the coast, as most treaties do. But for certain purposes, notably fishing, border control, and naval warfare, the exact determination of the line in the waters may be critical. There is no overall agreement in international law either as to the width of territorial waters—the zone of sea included as part of the possession of the bordering state—or as to the manner in which the off-shore line bounding those waters follows the indentations of the coast. The literature on this problem is voluminous, but among geographers, Boggs, so far as I know, is the only one who has made special study of the problem.[40]

The use of territorial waters by merchant ships of a foreign state, commonly for the purpose of entering the ports of the country concerned, represents the most common occurrence of use of territory of one state for the purposes of another state. In this case the purpose is mutual. In other, more special cases, problems arise from the desire or need of the people of one state to utilize the territory of a foreign country in order to have access to still other countries, or in some cases to a different part of their own state. Both Canada and the United States have permitted the construction of railroads across portions of their territories whose major purpose was to connect regions of the other country—e.g., the Michigan Central across Ontario from Detroit to Buffalo, or the Canadian Pacific across the State of Maine from Montreal to St. John, New Brunswick. European countries commonly will not tolerate foreign railroads across their territories, but the Polish railroads in the inter-war period operated, for Germany, through trains between East Prussia and the main part of Germany.

Nearly all states recognize the need of providing transit service for trade across their territories between states on either side, though this involves a multiplicity of minor problems of control. Most important are provisions for transit from an inland state to the seacoast in order to have access to the countries of the world accessible by sea routes. The Grand Trunk Railroad of Canada, now a part of the Canadian National Railways, not only crosses New Hampshire and Maine to reach the sea, but, when the winter ice closes the St. Lawrence, uses the harbor of Portland, Maine as its port of shipment for foreign trade of interior Canada, which constitutes most of the total traffic of that American port. In certain European cases more specific arrangements seem necessary: a section of a port, as at Trieste or Hamburg, may be allocated exclusively to handle the transit trade of a foreign country.*

Economic Relations

Trade in commodities among states in an essential part of the field of economic geography, treated usually as simply a form of interregional trade for which definite statistics happen to be available. Other forms of international economic relations, as in services, investments, etc., might no less logically be studied in eco-

[40] Boggs, *op. cit.*, pp. 184–192.

* Air Transport has of course added a new variety of transit problems.

nomic geography, but as yet few geographers have attempted to do this. While it is obvious that these economic relations between individuals or corporations in one state and those in others are somehow significant to the states concerned, it is by no means easy to determine what that significance is. In consequence many writers in political geography see no alternative but to throw in a section treating the international trade of the country in standard economic-geographic fashion.

In the analysis of a state-area the need to consider its economic relations with outside areas arises from the fact that in many respects a state operates, must operate, as a unit economy in relation with other unit economies in the world. The difficulties arise because, while it must operate completely as a political unit, a state-area operates only partially as an economic unit.

The first problem is to determine to what extent the economy of one state-area is dependent on that of others, though the mere analysis of self-sufficiency is only a beginning. If one says that the United States produces a surplus of coal and iron, but is dependent on foreign countries for much of its supply of tin, nickel, and manganese, of sugar and rubber—such a statement, even in precise percentage figures, tell us directly little of importance. If a country has plenty of coal and iron it can normally secure the other metals mentioned from wherever in the world they are produced. Under abnormal conditions of war, or threat of war, it is essential to know that the manganese normally comes from the Transcaucusus in the Soviet Union, the tin from British Malaya (but can be obtained in Bolivia), whereas the nickel comes from adjacent Canada. Natural rubber supplies are available in adequate amounts only in one remote region—Malaya-East Indies—but nearby Cuba can supply most of our sugar needs.

In general, the geographer will analyze the economic dependence of one state-area on others in terms of the specific countries concerned and their location and political association in relation to the state he is studying.

Since all sound trading is of mutual advantage to both parties, to say that one state is economically dependent on any other necessarily implies also the converse. But the degree to which any particular commodity trade, shipping service, or investment is critically important varies in terms of the total economy of each of the two states concerned. It is only in this sense that the common question "Is a particular state economically viable?" has any validity, since every state above the most primitive level is in some respects critically dependent on others.

The problem is far from simple, but perhaps we can suggest two generalizations. As between two countries that differ greatly in the size of their total national economy, the economic relationships between them are more critically important for the lesser country (though this might not be true under war conditions). This is true because these economic relationships, which may be taken as equalized through international balance of payments, will form a larger proportion of the total national economy of the lesser state. An obvious example is found in the relation of Eire to Great Britain, of Cuba to the United States.

The second generalization rests on the fact that the critical significance of the

trade depends on the possibility of alternatives, of finding other sources for needed supplies or other markets for products which must be sold to maintain the national economy. Most popular discussions tend to think only of the former, whereas under the capitalist profit-system under which most international trade operates, it is the latter that is more significant. The reason is that for most commodities of world production there are alternative sources of supply at moderate increase in cost; there may not be alternative markets even at greatly reduced selling prices.

Finally we may note that relatively few areas of the world now produce a surplus of manufactured goods requiring a high degree of technological development and these constitute therefore a relatively limited market for the surplus of primary products of farm, forest, and mine which can be produced widely over the world. Consequently the countries producing primary products, even the very necessities of life, may find it more difficult to find alternative markets for their products than the industrial countries producing articles less essential to life. With wider spread of industrialization over the world, this situation would of course be altered, conceivably reversed.

It should not be assumed however that these rough generalizations will provide the answer in any given case. Consider the problem posed by the independence of Austria after the dissolution of the Habsburg empire—a problem which Austria still faces. To survive as a viable economic unit, Austria needed to maintain with the adjacent regions, re-organized as independent states, a high degree of economic relationship. Its position in competition with otherwise more favored regions of industrial Europe, made it peculiarly dependent on markets immediately to the east. For these eastern neighbors such relationships were also necessary for the maximum economic progress, but were not vitally necessary to economic life. If, for political reasons, and to develop their own industries at greater cost, they preferred not to trade freely with Austria, they had the choice of the less profitable plan, whereas for Austria the alternative was economic collapse.

In the nineteenth century, international economic relations, though both supported and retarded by state action, were generally operated as the private business of individuals and corporations. With the depression of the 1930's, the rise of totalitarian states, and the last war, there has been an increasing tendency for the state itself to direct the operations of international trade and investment. In these respects states function increasingly as economic units so that the economic relations among them become increasingly important in the politico-geographic analysis of the state.

Political Relations

The most obvious form of political relation of a state to any outside territory is that of effective political control—as a colony, possession, dependency, or "protectorate." Commonly we recognize only a small number of states as colonial, or imperial, powers: eight or nine in western Europe, together with the United States, Japan, Australia, and New Zealand (the two latter functioning in islands

of the Southwest Pacific). Germany was eliminated from the list by the First World War, Japan by the Second. If, however, we recognize the colonial reality of areas adjacent to a state and legally included in its territory but actually not forming an integral part of that state (as discussed earlier in this paper), the list is far longer—including Canada, Norway, Sweden, the Soviet Union, China, the Union of South Africa, and most of the Latin American states. A new-comer to this list is the Indonesian Republic, with large territories subject to it in the primitive areas of Borneo, Celebes, etc.

The legal forms of colonial relationship vary widely—even within a single empire, such as that of Great Britain. Further, these legal forms may or may not express the reality of the relationship, the degree to which political organization is imposed and operated by the outside state. It is the latter, I presume, that is our concern in political geography.

One characteristic of colonial areas that is of particular concern from our present point of view is the degree to which the governmental system of the home state is extended over the colonial territory. France is in the process of fully incorporating certain formerly colonial areas into metropolitan France, but others only partially. Many imperial powers have always extended their legal systems into colonial areas so far as citizens from the home country are concerned, so that within any colonial area there may be an overlapping of two authorities—one having jurisdiction over citizens of the home state, the other over native people.

Many countries recognized by treaty as independent states, and functioning in large degree as such, are nonetheless under some particular degree of political control by an outside power. This may be limited to utilization of small fractions of the territory of one state by the government, usually the armed services, of the other—e.g., Great Britain in military control of the Canal Zone of Egypt, the United States Navy at Guantanamo Bay. The most important, relatively, is the American control for essentially an indefinite period, of the Panama Canal Zone, across the most populous part of the Republic of Panama. In other cases, the outside country may control directly no part of the territory, but rather exercise limited control, as through an adviser, over major aspects of government, especially foreign relations, customs, or the national budget. The United States has in the past exercised such control for limited periods over small states in the Caribbean area; a group of outside powers for years operated the tariff customs of China to raise money to pay the Chinese foreign debts. The clearest case of political domination of supposedly independent states by an outside state today is found in the obvious control by the Soviet Union over the internal policies as well as foreign policy of the "satellite" states on its west, from Poland to Bulgaria, even though this relationship is expressed in no formal treaties.

Generally speaking, recognition of independent sovereignty of a state by the other states of the world presumes that that state will maintain similar political relations with all friendly states, will not be bound by special political associations with any particular states. Numerous exceptions however are widely recognized.

Thus the dominions of the British Commonwealth are recognized as having emerged from colonial to independent status, even though they continue to be held together in continuously voluntary confederation with the United Kingdom, extending to each other numerous political and economic privileges not extended to other states. Likewise outside states have long recognized the special political concern of the United States for the Latin American republics, a concern now finally expressed in treaty as a mutual policy of association. Likewise they have recognized the long-standing political interest of the United States in the negro state of Liberia. The recent North Atlantic Pact, though intended primarily for military purposes, contains political clauses which, if implemented, would tend to create a special political association of the United States, Canada and the states of western Europe.

Finally, of course, nearly all the states of the world have accepted certain political commitments in joining the United Nations; insofar as this applies to all states, such commitments are universal, rather than geographically distinctive.

Strategic Relations

In no phase of political geography does the geographer experience such difficulty in maintaining his geographic point of view or in keeping his eye focussed on problems he is competent to study as in the field of strategic relations. Strategy obviously depends on national power and this is a subject on which the geographer feels ready to contribute his share, in "geographic foundations of national power." But in so doing he is migrating into a field whose core and purpose is not geography, but military and political strategy. Further, to answer the questions raised in that field—e.g., "How strong is a state?"—one must analyze not only the geographic conditions, but a wide host of other factors including the effect of party systems on the conduct of foreign policy, morale of fighting troops, effectiveness of personal leadership, size of standing armies, and number of fighting planes.

It is therefore not merely an intellectual exercise to attempt to distinguish between political geography and the study of the power of states (to which geography has much to contribute); it is a problem of practical importance for the individual geographer concerned to outline a unitary field of political geography in which he may competently work.

The literature of political geography provides no clear answer, so far as I can find, to this problem. Certainly the development of Geopolitik greatly confused the problem for the German geographers, and those of our own colleagues who have hoped to establish a purified field of geopolitics have inherited that confusion. Some writers evidently solve the problem by simply omitting any consideration of strategic relations. But surely this produces an incomplete study. In the analysis of the external relations with other state-areas, we must certainly recognize that the state-area, as a unit, has vitally important strategic relations with the other areas of the world.

I therefore approach this problem with no assurance that we have a satisfactory

answer.[41] But in this progress report, it may be appropriate to present as current thinking even very tentative conclusions.

Every state-area in the world lives in a strategic siutation with other states, a situation that may be in part created by its own actions and policies, but in major part is determined for it by those other states.

Thus Switzerland in modern times has been a unit area of relatively small offensive power, though not inconsiderable defensive power, situated in the midst of a group of larger neighbors, each fearful of expansion of power by the others. In this situation Switzerland has found its best hope for security in a policy of armed neutrality because such a neutralized area was in the mutual interest, defensively, of the neighboring powers. In a much earlier period, in the sixteenth and seventeenth centuries, when Austria was the only major power bordering Switzerland, and many of its neighbors were small states, the Swiss Confederation followed a very different policy of strategic relations, frequently allying itself with any of various neighbors in conflict with the others.

The strategic relations of a state, in other words, must be adjusted to the particular strategic situation in which it finds itself at any time. With the unification of Germany in 1871, the strategic map of Europe was changed no less than the political map. Because that new unit increased in economic production, population, and power faster than any of its neighbors, and was able to establish close strategic relations with Austria-Hungary, forming a solid block of power across Central Europe, all the other states of Europe including Great Britain, were forced to change their strategic relations with each other.

Within the last five years the United States has found itself forced to abandon one of its most time-honored principles of international relations—that of having no strategic relations in peacetime with any states outside of the Americas. The new relationships entered into under the North Atlantic Pact followed an appraisal of the new pattern of space-relationships of power as created by the changed system of states in Europe. It might be significant, though now too late, to ask whether an equally realistic appraisal of that situation in 1938 or 1939 would not have shown the need for a similar strategic association at that time.

Whatever reaction the reader may have to that idea, our concern in this theoretical discussion is merely to illustrate the type of problem that seems appropriate for inclusion in the analysis of the political geography of a state-area. In studying the relations which such an area, operating as a unit, enters into with other areas, we are concerned with engagements which it has, or has not, made with other units, whether for defensive or offensive purposes. Interpretation of these associations ncessarily involves an appraisal of the space relationships of all the strategic

[41] As examples of attempts to handle this problem in specific cases, reference may be made to two studies, by the writer, one written early during the last war (though published somewhat later), the other just after the end of that war: "The United States and the 'Shatter Zone' of Europe," in Hans W. Weigert and V. Stefansson, *Compass of the World*, New York, 1944, pp. 203–214; and "The Geopolitical Position of the United States and the Soviet Union," *Education*, (October 1946): 95–100.

areas involved, whether as power units or as territories of passage. The problem is logically inherent in the political geography of states and its geographic quality seems clear.

It is equally clear from our examples however that in making such a study, one must assume as given quantities certain factors the determination of which forms a main part of the study of national power, the field we are attempting here to separate from political geography. But is this difficulty not inherent in most, if not all, branches of geography? We are constantly dependent on other fields to provide us, as result of lengthy research, with conclusions which we accept and use as established.

Ideally, the student in political geography would have at his command conclusions already arrived at in studies of the potential military power of states, upon which he would base his interpretation of the strategic relations of the state he has under study. If such studies have not been made, the political geographer may find it desirable to make them himself; as a geographer he has command of much of the basic material necessary and with the help of colleagues from other fields may be able to reach reasonably reliable conclusions. But if our distinction between the two fields is valid, the general requirement that a student should not lose his orientation in reference to the core of his field is of particular importance in this case; for otherwise the attractiveness of studying questions of such great moment as national power may result in his never returning to the field in which by training and experience he is fully competent.

Relation of Territorial, Economic, Political, and Strategic Relations

For purposes of organization, we have considered separately four different types of associations which the state-area has with other areas of the world. It is also necessary to see them together in their interrelationships. If one were to suppose that there would generally be a high degree of correspondence among them, the examination of concrete cases would reveal many discrepancies. Thus, popular thought assumes that Great Britain's most important economic associations are with the countries of the Commonwealth and Empire, but actually her largest and most critical economic trade is with the United States. Argentina is more important economically to Great Britain than any of her African possessions. Throughout our history, the dominant economic and strategic concern of the United States was with European states and our major territorial problems were settled with those states. And yet until 1949, the United States carefully abstained from any continuous political association with any European states. But it was primarily our strategic concern toward European states that led us into our special relationship with Latin America under the Monroe Doctrine. On the other hand our political guardianship of Liberia was unrelated to any territorial, economic, or strategic concern until the Firestone Tire Company utilized that political relationship for economic purposes, in its project for rubber production in the 1920's, and in the last war we discovered at least a temporary strategic value in the need for airports in West Africa.

SUMMARY AND CONCLUSION

Political geography, as a distinct unit branch of geography, is to be justified neither in terms of political aspects of geography nor in terms of geographic foundations of politics, since each of those constitutes but a collection of partial solutions separated from the problems involved. The core of political geography is the study of one distinctive phenomenon in the total differentiation of areas, namely the sections of area organized as political units. Areal differentiation is both most marked and most important in respect to units of land at the level of state-areas.

The state-area, like a farm or an industrial plant, but unlike these sections of area that we ordinarily study as "regions," is an organized unit of land and people, organized by man according to a particular idea or purpose. Though in no proper sense an organism, the state-area is an organization that has genesis, structure, and function. Logically, therefore, the analysis of a state-area may be approached from any or all of these three viewpoints. In contrast to genuine organisms, there is no close mutual relationship between genesis on the one hand and structure and function on the other; on the contrary, states have tended to add pieces of territory whenever it was possible to do so, regardless of need, and then to adapt function to the automatically resulting structure. Hence the study of the genesis of state areas tends to be largely historical in interest, throwing little light on structure and function.

Likewise, in contrast with such areal units as farms or industrial plants, the state is not able to plan or evolve its regional structure, but must simply operate in whatever structure its history and geography have happened to produce. Since these vary for every state, not in minor degree, but fundamentally, the attempt to find a general principle of regional structure of state-areas is futile. Further, the state-area, though a genuine geographic phenomenon, is not a concrete object exciting direct interest in its morphology for its own sake. Hence the morphological approach to the study of the state-area is either a dull and lifeless description of something that appears real only on a map, or, if used as a method of approach to the understanding of function, tempts the student to naive forms of geographic determinism.

State-areas are important, both in the practical and in the academic sense, primarily in terms of their functions: namely what the state-area as a whole means to its parts and its relations as a whole with outside areas. These functions, determined by the human forces that operate the state-area as a unit, are greatly affected by the structure of the state-area, which of course is the current product of its past dvelopment. In a sequence of cause-and-effect relationships, science can safely proceed from cause to effect only in those situations in which the relatively small number of factors and a multiplicity of similar cases makes possible the establishment of reliable scientific laws or general principles. These requirements are lacking in political geography.

Consequently we conclude that the rational, scientifically reliable, and realistic approach to the study of state-areas is to start with the phenomena with which we are most concerned—the functions of the state-area—to determine how these have been affected by the character of the area itself, its structure and contents, and to utilize historic facts of genesis insofar as those aid us in understanding structural features previously determined to be significant.

There is however a practical situation in which we may be forced to reverse this procedure. If plans are being made for the construction of an entirely new state-area, or for major territorial alterations in an existing one, one is forced to attempt some prediction of the capacity of such a projected organization to function effectively as a unit. Political geographers will be able to claim superior competence in attempting predictions in such cases only if they have established a high degree of understanding of the reasons why present or past state-areas have or have not functioned effectively.

The fundamental internal function of the state-area is to establish itself as an effective unit in fact, rather than merely in international law. This requires the conception and establishment of an idea of the state, a purpose or set of purposes, sufficiently strong to overcome the centrifugal tendencies resulting inevitably from the separate and divergent interests of the diverse regions that are included, in a particular geographic pattern, in the structure of the state-area.

Externally, the state-area functions as a unit area in friendly or unfriendly relations with other state-areas and other outside areas, relations that may be classified as territorial, economic, political, or strategic. Its specific relations with any one outside area may involve a complex of all these and further they are interrelated to its similar relations with all other outside areas in a world system which forms a single whole. The study of these interrelations among state-areas is primarily a study in space relationships among unit-areas differing in internal character, production, and power.

I trust that the categorical manner in which these conclusions are stated will mislead no one to suppose that this paper is intended as a blue-print which future studies in political geography should follow. We are not ready for that, if indeed we ever should be. Rather the attempt has been to suggest how we may construct a system for the study of state-areas, a system that must be sufficiently flexible to be bent to the differences that distinguish each state-area from all others, but which may enable students to work cumulatively, to build upon what has been produced by previous students.

Because the theme of my paper is limited to one branch of geography it might appear to be addressed to only a limited number of our members. I hope that will prove to be a large number, since we need the combined efforts of many to work out more effective methods of study. But this is not a call to all geographers to leave whatever they are studying to work in this particular field.

In another sense however the paper is addressed to all geographers, certainly to all geographers who specialize in any foreign areas. In your regional studies

you inevitably come face to face with problems in political geography. As specialists for your particular region you know more about the underlying factors in its political geography than does the student of political geography in general who is not at home in your region. In order that such knowledge may be analyzed and organized into studies useful to other students, lasting contributions both to regional geography and to political geography, we need to develop effective methods for study that will give political geography an organized structure of knowledge, clearly integrated into the field of geography as a whole. This paper is a progress report of efforts to achieve that goal.

ABSTRACTS OF PAPERS PRESENTED AT THE 46TH ANNUAL MEETING OF THE ASSOCIATION, HELD AT CLARK UNIVERSITY, WORCESTER, MASSACHUSETTS, APRIL 5, 6, 7, 8, 1950

SYMPOSIUM ON RESOURCE MANAGEMENT

TREVOR LLOYD—*West Greenland: Model for Arctic Development.*

This paper summarizes the physical and human geography of the southwestern part of Greenland, stretching from Upernavik at the southern end of Melville Bay in approximately 73° N latitude, southward to Cape Farewell in approximately 60° N latitude. It is along this southwestern coast of Greenland that modernization has taken place, and it is here that development is proceeding rapidly.

Since about six-sevenths of Greenland is buried under ice, only a narrow strip of land is exposed along the coastline, never exceeding one hundred miles. Most of the 22,000 people live along this coastal fringe. Of mixed Eskimo and European origin, these "Greenlanders" have increased rapidly in numbers in the last half-century, and are now straining the restricted natural resources of the country.

Denmark, which has governed the country for almost two centuries, has traditionally maintained a strict policy of isolating Greenland from outside contacts. This has protected the natives and given them a high standard of education, reasonably good health, and a carefully planned economy insulating them from the vagaries of world prices. Today this traditional policy is being questioned. Intensive efforts are now being made to modernize West Greenland through building efficient harbors, power stations, fish processing plants, by raising still higher educational standards, and by speeding up Greenland's self-government.

LILLIAN WORLEY—*The Geographer's Contribution to Education for Resource Management.*

In the nation as a whole, the conservation movement, or as it is more generally phrased now, the movement for improved resource management, is new. Charles E. Merriam describes American Conservation policy as being

> A consciously designed plan for preserving the natural resources of the country. This rests partly upon the desire to avoid evident waste of assets, and partly upon desire to prevent control by special as opposed to general interests. The broad policy of preserving and protecting the Nation's water power, timber, minerals, and other similar resources, is an illustration on a large scale of a drift away from opposition to state interference.

Another well-known authority states that "Among the major difficulties which hamper the adaption and execution of an adequate conservation program are public apathy, 'rugged individualism,' and government ineptitude." The geographer may do much to assist in surmounting these three obstacles; for geography alone provides the student with an opportunity for extensive experience in both the natural and social science fields. The geographer's training in both the subject matter and

techniques of resource conservation and utilization equip him to lead people to an understanding of what resources are, how they are classified, and the principles which govern their wise use. His objectives are to see to it that people understand, (1) that some resources such as air, water, and sunlight are inexhaustible, some such as the minerals and metals, oil, and natural gas are exhaustible, while others such as forests, wildlife, and soil are exhaustible, but within limits renewable, (2) that each part of the natural environment is interrelated and interdependent with other parts, (3) that the natural environment tends to move toward a balance. To meet his needs man must disturb the natural balance, but wherever possible, he must attempt to establish a new balance, and thus preserve the factors which create the resources he uses.

The geographer may accomplish his objectives and thus contribute to improved resource management in several ways: (1) by closer participation in curriculum building programs at all levels—elementary and secondary school, college and university, (2) by emphasizing in his own classes or work subject matter organized *functionally* rather than *traditionally*, (3) by providing more training in field work and field techniques, (4) by cooperating with both pre-service and in-service teacher-training programs where to an ever-increasing degree subject matter is being integrated into a few broad fields of major interest, and the content treated functionally, (5) by cooperating with State Departments of Conservation in setting up their education programs, (6) by working with state legislative bodies in establishing better managerial policies and practices for protecting and utilizing the state's resources, (7) by accepting membership on local, state, and national committees of organizations which are promoting education in the resource field, and (8) by accepting invitations to speak to various professional and lay groups whose influence with policy-forming bodies may be considerable.

Recently, Mr. Bernard N. Baruch stated that one of the major actions needed by this country "is a constant, vigilant inventory of our national resources in relation to what another war would demand." How much better it will be when we can view such inventories in relation to the role which resources may play in developing institutions for promoting peace and prosperity! Here is a task for which the geographer is uniquely equipped to render a vast contribution. The challenge provided by the increasing demands being made on a depleted resource base calls for his leadership in creating public opinion for meeting educational needs in the area of resource utilization.

WESLEY CALEF—*Problems of Grazing Administration in the Basins of Southern Wyoming.*

The Bureau of Land Management is faced with the problem of applying a set of general range-administration rules to widely differing areas. Two grazing districts in southern Wyoming are examined. Variations in both cultural and natural

features result in differences in administrative procedure and the degree of success attained in the solution of range problems.

GILBERT F. WHITE—*The Theory of the Benefit-Cost Ratio: a Guide to Resources Development.*

The crux of public policy in the development of natural resources is the method by which decision is reached as to how and to what extent a given resource is to be developed at any given time. It appears that the methods currently in use in the United States and in many other areas of the world are based for the most part upon the theory of the benefit-cost ratio.

This is the theory that the ratio of estimated benefits from a proposed development, such as an irrigation project, a flood-control scheme, or a hydroelectric dam, to the estimated cost of constructing and operating and maintaining the project is a measure of social justification for the development. Its corollary is that a ratio of unity or more is equivalent to justification, and that a development with a ratio of less than unity is not jusified.

The theory is applied to determinations of economic feasibility of proposed developments, to the selection of alternative plans, and to the scheduling of approved plans of development.

Possibly there is an alternative theory more likely to serve the public interest in guiding the location and decision of new resources developments. Unless and until a more suitable alternative is found, every effort should be made to improve the present practice and to recognize its implications.

Tremendous variation occurs in applying the theory. The major points of variation are the definition of benefits, the definition of costs, the allocation of joint costs, and the discounting of future benefits and costs.

The specific method selected at each of these points may have far-reaching consequences in the development of a region. For example, the estimation of benefits may determine whether water is applied to land in the upper part of a basin or in a lower part. The allocation of costs may favor manufactural development through electric power rather than agricultural development through irrigation in another part of the same region. Field method and national policy are linked inextricably.

Geographers, with their regional view of resources, can and should aid in clarifying those issues of national policy which are involved in applying this theory of resources development. Their aid is invited by the President's Water Resources Policy Commission which currently is studying these issues.

SYMPOSIUM ON GEOMORPHOLOGY IN HONOR OF THE 100TH ANNIVERSARY OF THE BIRTH OF WILLIAM MORRIS DAVIS

C. A. COTTON—*Tectonic Relief.* (Read by title)

Reanalysis of fault scarps of humid regions, following the lead of W. M. Davis, yields data on fault-angle valleys and on first-cycle fault scarps which amplifies the

geomorphic analysis. Under appropriate conditions scarps which, under strict interpretation of the definition, are *fault-line* scarps may actually best be regarded as "well-worn" *fault* scarps.

HENRI BAULIG—*William Morris Davis as a Master of Method.* (Read by title)

For Davis the ultimate aim of geomorphology is and should be "the explanatory description of land forms." He freed geomorphology from classical geology. He invented a methodology discussing the mental processes whose complexities underlie the successful investigation of the past of the earth.

The doctrine of the Cycle of Erosion was his greatest accomplishment. He was defective in his disregard of eustacy and of the possibility that several active cycles may be simultaneous in development although successive in origin. Similarly the development of landscape in climates other than "normal" was slighted and we cannot yet evaluate the importance of the "other" climates or the effect of rapid change in climate.

Nevertheless the ideal Cycle of Erosion summarizes and brings into focus a multiplicity of facts which make up the landscape at any one time. Further, each element is both a function of the past and a forecast of the future. Thus once one has grasped these elements he has a picture—a grasp of landscape as a whole.

That various theoretical and philosophical problems remain is true. Numerous more precise studies can be made. However, whatever success may attend the study of processes, the interpretation of forms will remain the ultimate aim of geomorphology. To this end, the Davisian method has not thus far been superseded.

KIRK BRYAN—*The Place of Geomorphology in the Geographic Sciences.*

Geomorphology, or the science of land forms, can be considered from several viewpoints. Ideally it is a study in morphology; but experience shows that analysis on form alone gives only limited results and that the use of other geologic methods: sedimentation as a prime instance, is necessary for complete solution of the origin and history of landscape.

From the geologic standpoint geomorphology has a limited objective unless it contributes to earth history. If it can be considered as a working method in the field of historical geology, then ideal geomorphology becomes an applied science. It can also be applied not only to historical geology but to placer deposits, residual ores, engineering projects, and other sub-fields of economic geology. The application of geomorphic methods to Pleistocene geology, glacial geology, and the geology of archaeology are well-known fields of effort. In fact distinctions between geomorphologists and Pleistocene geologists are invidious. How does one distinguish Tweedledum from Tweedledee?

Davis, of course, considered that the application of geomorphology (physiography) to geography was the prime objective. Russell has with some justifica-

tion bitterly denounced certain types of application. Yet the great project of describing, clearly and genetically, the land forms of the United States has been largely achieved (Fenneman). More minute subdivision, refinements of boundaries, and redescription continue to be made. This is solid accomplishment, and may eventually be extended to the whole world.

Application of geomorphology to geography faces, however, an unforeseen contingency. We have a generation of geographers that knows not Davis! How can we explain the features of the earth to the indifferent and the unwilling? Must the educational effort of William Morris Davis be repeated?

ARTHUR N. STRAHLER—*Davis' Concepts of Slope Development Viewed in the Light of Recent Quantitative Investigations.*

In 1899 W. M. Davis stated that the development of graded slopes normally follows the grading of streams, that water streams and waste sheets are extreme members of a continuous series, and that graded slopes recline to progressively lower angles. Davis' adherents have since added little to this concept. Despite the example set by G. K. Gilbert in his pioneer work on quantitative and dynamic aspects of stream activity, many American geomorphologists have been content to perpetuate the explanatory-descriptive system as it applies to slopes in the erosion cycle.

Major advances in the understanding of factors controlling erosion on slopes have been made since 1930 by hydrologists, hydraulic engineers, and soil erosion specialists. In 1945 one of these men, Robert E. Horton, brought to the attention of geomorphologists an inductive-quantitative method of landform analysis based on dynamic understanding and the measurement of form elements.

Statistical analysis of slope angles by the writer shows that in a maturely dissected region, valley-wall slopes tend to group closely about a mean value which is related to the mean gradient of the associated stream channels. These results seem to confirm Davis' principle of graded slopes. Other testing based on field measurements appears to confirm Davis' principle of reclining retreat of slopes as opposed to Penck's doctrine of parallel retreat. As our knowledge of form characteristics and the dynamics of erosion processes increases, it may become desirable to substitute for Davis' concept of "maturity" the concept of a steady state in an open system of equilibrium.

LOUIS C. PELTIER—*The Geographic Cycle in Periglacial Regions.*

Variations in relative importance of different geomorphic processes with the climatic regime cause corresponding variations from the normal geographic cycle. The periglacial cycle is one variation. It prevails today in subpolar regions and, during the Pleistocene glaciations, prevailed about the continental ice margins.

Evidence of short-lived, periglacial, partial cycles in the Appalachian Mountains of Pennsylvania and the St. Francois Mountains of Missouri occurs in the form of block fields, boulder-strewn slopes, congeliturbate deposits, and slopes moulded by cryoplanation. The processes of these partial cycles must have caused a significant lowering of the tops of hills and mountains.

Geomorphic processes under a temperate regime tend to destroy the relics of the periglacial cycle and to superimpose the features of the pluvial-fluvial cycle.

URBAN GEOGRAPHY

WILLERT RHYNSBURGER—*Ice-modeled Harbors of Puget Sound Ports.*

Puget Sound, strategically occupying the northwest salient of the nation and having distinctive commercial functions, is physically a product of submergence, endowed with literally hundreds of harbors. The following questions are asked: What kinds of harbors occur, and which of these form the bases of important ports?

Four stages in the Pleistocene and post-Pleistocene history of the region have influenced the harbor forms: proglacial sedimentation, uplift and stream dissection, subsidence and Vashon (Wisconsin) glaciation, and postglacial sea cliff cutting and alluviation. As a result of these events, the present shore features of Puget Sound consist of (1) sea cliffs cut in tabular uplands of glacial drift, (2) shallow drowned valleys of the drift plain, and (3) estuarine deltas of the major rivers.

1. Certain harbors of moderate usefulness exist in the northern part of the region where the bluffs are low, but as ports they are seriously handicapped by distance from the important land entrances to Puget Sound on the south and east and by the limited size of local hinterlands.
2. Drowned valleys provide many adequate harbors, but possible utility is destroyed by their location west of the main channel of Puget Sound, so that they are virtually inaccessible to the main lines of trade.
3. Where the troughs of Puget Sound are partly occupied by alluvial fills, excellent harbors occur, affording deep water close inshore, protection from storms, level land adjacent to tidewater, and low-gradient routes to the interior. Only two harbors possess all these characteristics. Among hundreds of potential ports, these two have become the sites of Seattle and Tacoma, the two world ports of Puget Sound.

CLARENCE B. ODELL—*Another New Population Dot Map of the World.* (Read by title)

At the 1943 Washington meetings of the Association of American Geographers, a paper was presented entitled "A New Population Dot Map of the World." The discussion at that time dealt with a map compiled and drafted for the United States Department of State. The original map was considered by many as the most up-to-date and detailed population dot map for the period immediately preceding World War II. It was based on the latest census or official estimates for the decade of

1930–1940, and population was shown by dots, each representing 50,000 persons. The world's total population has been increasing by approximately 20,000,000 persons per year. The 1938 prewar estimate of 2-1/6 billion persons has now been increased by more than 180 million to slightly more than 2-1/3 billion. This is an increase amounting to more than the present population of the United States. For two reasons it was decided to revise the Department of State map, using data for the decade 1940–1950, a decade later than that for the original map. In the first place, the map was revised for cartographic reasons by replotting the dots from the sinusoidal projection to the new map on Goode's homolosine projection. In the second place, the map was revised because psychologically everyone wants a map based upon the latest data, and this is especially true of population maps. It is the purpose of this presentation to do three things: (1) indicate where revisions were called for in terms of new population data; (2) indicate where improvements have been made in terms of geographic interpretation based on new maps or other information relative to settlement patterns; and (3) determine what scientific reasons, if any, exist to justify and warrant population dot map revisions. On the other hand, it is *not* the purpose of this paper to: (1) discuss the details of the overall pattern of population distribution in the world, or (2) discuss the techniques of plotting the dots. Both of these approaches were given emphasis in the presentation of 1943. This presentation thus boils down to a consideration in terms of this new map of the advisability of revisions of population dot maps through the use of recent population data and information relative to population distribution.

JAMES R. BECK—*Some Major Aspects of the Geographic Pattern of Akron, Ohio.*

The pattern of Akron is neither as attractive nor as convenient as it might well be. This is a serious matter to the people of the Akron metropolitan district. Large sums have been expended to remedy the situation without overall planning and without achieving results commensurate with outlays. Detailed understanding of the functional dynamics of the city in relation to its internal geographic pattern of diverse land form—land use complexes has not been applied to provide a long range program to maximize benefits and to minimize costs of improving the habitat.

The site of the original settlement which became the nucleus of centripetal forces in the Akron metropolitan district was chosen in reference to a gap through which the Ohio Canal crossed the watershed between the Ohio River and Lake Erie drainages and in reference to water-power resources. The gap and the power resources are results of a complex physiographic evolution which involve a vast system of pre-Wisconsin valleys, glacial modification, deposition in Glacial Lake Cuyahoga, valley train deposition, and differentiated rates of downcutting in the Tuscarawas and Cuyahoga Valleys and above the filled pre-Wisconsin valleys. The site of Akron has a relative relief of over 440 feet, many steep slopes more than 100 feet high, and sharply differentiated land forms which include rolling glaciated uplands, an ex-

tensive system of poorly drained flatlands at intermediate elevations, a great flattish floored valley, numerous blufflike slopes, vast deep ravines, and a rock gorge.

The works of man which have been superimposed upon this complex site reveal the following major significant features: (1) extreme differences in the intensity of utilization related directly to characteristics of the site and indirectly to great differences in accessibility; (2) limited access to the Central District, which is surrounded on three sides by steep slopes of natural origin and on the remaining side by a deep railroad cut; (3) difficulties of the site of the Central District which present acute building and parking problems; (4) the development of outlying parts of the urban development as segments discretely separated from one another; (5) the development of a radial street pattern converging within the Central District as the arterial system serving intra- and intersegmental traffic; (6) the flow of industrial workers and shoppers along this restricted system; and (7) the neglected opportunity to transform the city by the development of greenbelts and arterial speedways in the slightly utilized interspaces between the major segments of the city.

RAYMOND E. CRIST—*The Personality of Popayán, Colombia.*

The town of Popayán, in southwestern Colombia, became, soon after its founding, the favorite place of residence of great landholders and wealthy mine owners, who vied with each other in spending their money on palatial dwellings, on churches, and on religious processions and festivals. Mines were worked out, the slaves were freed, but the colonial mentality and concepts remained entrenched in Popayán. Extensive cattle grazing only increased in importance, becoming the *summum bonum* of the wealthy. (Land holding became important at least as much for prestige as for purely economic reasons.) And the cattlemen showed no interest in accumulating capital from income for investment in industry. Cattle pastures begin at the very edge of town and have even invaded the small holdings—originally worked on a communal basis—of the Indians in the small villages a few miles away. Intensive agriculture has been pushed farther and farther into the steeper, less fertile parts of the mountains, while transportation costs and prices on foodstuffs soar. The natural increase of the vigorous rural population could not be absorbed in the small-scale household industries and handicrafts of the town; it has been forced to cross the mountain range to the east to take up new lands there or to migrate to the more modern industrialized cities to the north in search of factory jobs. These various factors have operated to preserve the medieval *status quo* in Popayán, where emphasis is still placed upon its glorious role in history, its great families, and its religious processions. But as long as most of the influential Popayanejos find this nostalgic backward-looking completely satisfying, just so long will the town remain a relic of the Middle Ages. The retarding influence of the cultural background—particularly prestige landholding—has overcome the favorable factors of the physical enviornment and has invested Popayán with its personality of arrested development, for, although capital and labor have both been amply available for in-

dustrial development, there has been neither the vigorous enterprise of the capital-accumulating business man nor the independence of spirit of the freeholder to engage in the struggle for the abolition of colonial feudalism.

CAROLYN W. BECK—*Sydney, Nova Scotia: a Geographical Expression of Localized Industry.*

Sydney, Nova Scotia, is one of the three major steel-producing centers of Canada. The welfare of its estimated 33,000 residents is, to a major degree, dependent upon the fortunes of the Sydney Steel Works, a constituent unit of the Dominion Steel and Coal Corporation, Ltd., one of Canada's larger enterprises. The steel mill dominates the urban landscape and accounts for nearly 50 per cent of the total employment in the city. It was the major factor contributing towards the development of nearly three-quarters of the built-up area and continues to maintain Sydney as the primate service center on Cape Breton Island.

Location in a major coal-producing field and proximity to iron ore and limestone reserves in Newfoundland were outstanding factors in attracting the steel industry to Sydney. Maritime location also favored Sydney as a center for export. Yet these advantages have not in the past been adequate to overcome certain disadvantages inherent in Sydney's geographic situation. Peripheral location with respect to the centers of population and industry in central Canada, the tariff wall between the United States and Canada, and disruption of overseas marketing channels by two world wars have made the marketing of Sydney's steel products at times somewhat uncertain. Since the incorporation of the Dominion Steel and Coal Corporation, in 1930, the adverse effects resulting from fluctuations in the rate of operation at the steel plant have been considerably lessened. A financial policy of foregoing dividends for fifteen years has provided funds which have been directed towards: (1) improvement of facilities in mines, plants, and transport; (2) enlarging the corporate membership to include units in central Canada, both to increase the earning power of the corporation and to serve in part as outlets for Sydney's products; and (3) providing adequate liquid and reserve capital. The progress achieved by the corporation has greatly strengthened its competitive position and every community which is an expression of its activities. Sydney and the Sydney Steel Works are such expressions, and the outlook for them is affected by the policies of the company as well as by Sydney's location with respect to raw materials and markets.

CLARENCE B. ODELL—*The Distribution and Age of the World's Larger Cities.*

Today approximately 12 per cent of the world's population lives in about 766 urban areas each of 100,000 or more inhabitants. The population of these larger cities of the world is based on the latest available censuses or official estimates.

It is well known that such cities are not distributed uniformly and that the proportion of population in them is not the same for all continents. By analysis of many

historical and statistical sources it also has been possible to determine the approximate year since 1800 when each city reached 100,000. Three periods were selected and the cities were plotted on a map. The approximate number of cities appearing in each of the three periods is: prior to 1850, 94 cities; 1850–1900, 197 cities; 1900–1950, 475 cities. Cities which reached 100,000 at some earlier date and are now below that figure are not included.

CULTURAL AND SETTLEMENT GEOGRAPHY

GEORGE W. HOFFMAN—*The Evolution of Settlement in Alpine Austria.*

The Romans advanced into Tirol, subdued various tribes, and created the new Roman provinces of Rhaetia (15 B.C.), Noricum, and Pannonia. This occupation brought them into contact with the Germans, mainly the Marcomanni, whom they fought with little interruption for more than four centuries, until the Germans in turn occupied the provinces and as Bavarians became the most important element of the population of modern Austria.

The agricultural wealth of Pannonia, the salt and iron mines of Noricum, and the timber of Rhaetia stimulated trade with Italy and encouraged the growth of towns. The Danubian provinces played a decisive role not only in the protection they gave Italy from various intruders but also in the political influence they exerted through the power of their armies and their leaders. Carnuntum and Vindobona became the main Roman legion posts, guarding the entrances to the north Italian plains.

Periodical overpopulation and land hunger, combined with pressure from remote races, set the Barbarians against the frontier of the Roman provinces and brought new masters to the Danubian lands.

The Slavs and Avars moved into Austria at the same time as the German people encroached from the northwest. The Avars left only superficial traces; Slovene settlers built their settlements in the depopulated valleys of the Eastern Alps. The present German character of eastern Austria resulted from constant pressure of Germans and their abundance of manpower. At the end of the eighth century Charlemagne attacked the Avars and pushed them eastward. After the total defeat of the Avars, the newly secured territories were organized as buffer lands against further encroachment from the east. The Eastern March and the Marches of Carantania and Carniola are examples of these buffer lands.

The Marches were still too weak to hold back the intrusions of the Magyars. Their influence in the mountainous country was scarcely visible for they merely used the territory as a place of origin for their western expeditions. Finally, the Magyars were defeated. The Eastern March was revived as a militiary measure. The boundary of the March was slowly extended until it reached the March and Leitha rivers in 1025. Bavarian and Frankish colonists, monks, and traders reoccupied the March. New monasteries were established in the unprotected and forested country north and south of the Danube.

The great migrations of various people through the former territory of Roman

Austria had brought many changes. Two new types of people, the Slovenes and the Germans, permanently settled in these lands. They acquired a new religion. While there were few settlements, the nucleus for the later dense settlements and agricultural clearings was formed.

G. R. RUMNEY—*Settlements on the Laurentian Upland: the Lake Nipissing Area.*

The Laurentian Upland, largest physiographic province in North America, has resisted the encroachment of settlements except in a few widely scattered areas, most of which have been developd around mining centers. A few areas have been successfully occupied, however, where nonmining activities are the chief support of the population. One of these is the Lake Nipissing Area, occupied by people who are principally engaged in general farming, the cutting of timber for lumber and pulpwood, and an expanding recreation industry.

Because of the rocky, broken nature of the surface, the scarcity of fertile soil, and the shortness of the growing season, farmers have found that the most profitable agricultural use of the land is dairy farming, with a sparse scattering of such specialized activities as poultry raising, commercial fur-farming, and the raising of beef-cattle, hogs, and sheep.

While agriculture has been the foundation of successful colonization in this area, the continued increase in population has been closely related to the development of lumbering, pulpwood production, and the more recent innovation of the tourist trade. Although lumbering, begun on these lands more than a century ago, has suffered a decline in recent decades, it still provides an important means of supplementing the incomes of farmers and others in seasonal occupations. The same economic advantage is supplied by the pulpwood industry, centered at Sturgeon Falls, the site of a large pulp mill built in 1898.

In recent years the forested hills, the many lakes and rivers, and the cool summer weather of the Lake Nipissing Area have attracted a growing number of vacationists from the United States and elsewhere in Ontario and Quebec. The rising importance of the tourist trade has been due to the increasingly widespread use of the automobile and the improvement of highways. Over 200 tourist camps were in operation along the shores of Lake Nipissing and the French and Mattawa Rivers in 1949. More than two and one-half million dollars were spent by tourists in this area during the summer months of the same year.

The center of the recreation industry and also of commercial activity in the Lake Nipissing Area is at North Bay, a city of 18,000, situated on the northeast shore of Lake Nipissing. Nearly all the remaining towns and villages of this area are primarily rural trading and postal centers, with the exception of Sturgeon Falls, Mattawa, Cache Bay, and Callander.

In general, a trend toward population stabilization can be noted, especially in the seven productive farming areas. Along the unpopulated margins of the more densely settled sections, the pioneering stage of agricultural colonization can

still be observed, for each year new clearings are made in the forest by adventurous settlers hoping to establish successful farms. Although many are unsuccessful, they illustrate the way in which the Lake Nipissing Area has been colonized since the period of railroad building during the 1880's.

ALFRED H. MEYER—*Circulation and Settlement Patterns of the Calumet Region of Northwest Indiana and Northeast Illinois: the First Stage of Occupance—the Pottawatomie and the Fur Trader, 1830.*

A cartographic representation and chorographic analysis of the occupance patterns of circulation and settlement of a region, as they have changed chronologically, are essential in understanding how the present-day landscapes have evolved out of the past. This paper, with its three sequels, is a study of such sequent occupance development through four stages as exhibited in the Calumet region of northwest Indiana and northeast Illinois. This first installment deals with the aboriginal stage of occupance—that of the Pottawatomie Indian and the French fur trader.

The significant relationships of land and life will be considered with reference to four primary geographic functions: geographic position, regional differentiation, interregional relationships, and recognizable areal correlations between the human and physical elements of the various environments.

Application of these geographic functions to the study of the Indian-French period and the successive periods reveals that the progression of natural and cultural heritages in the Calumet from one period to the next can be most effectively demonstrated by using the pattern of circulation as a unifying bond of interperiod as well as interregional relationships. Thus the Indian trail evolves successively into the pioneer's dirt road, the improved farm road, and the present-day paved superhighway. Further unity of this theme is expressed in the striking similarity of the general arterial Calumet travel patterns of the several periods, related as they are to the *cul-de-sac* shoreline of Lake Michigan and the three major ancient parallel beach ridges of old Lake Chicago.

The task of securing adequate data for reconstructing the aboriginal landscape poses many problems. Fragmentary trail lines must be integrated and interregionally related. Topographic descriptions from numerous sources require interpretation and evaluation. Units of landscape are classified and cartographically differentiated. Indian occupance patterns are correlated with the Pottawatomie environment. The relation of Pottawatomie occupance to pioneer settlement is explored.

Pottawatomie landscape data are superimposed on a political base map of present-day townships and towns to facilitate instant geographic orientation.

Material from over two-score Federal survey plats, extracts from numerous volumes of survey notes, data from more than three dozen maps, and excepts from twenty-five written sources, including several unpublished manuscripts, have been incorporated in this study.

Four maps have been specifically drawn to illustrate the basic geographic concepts of the text: Regional Location, Landform, Relief, and The Fundament.

EDWARD T. PRICE—*Mixed-Blood Populations of the Eastern United States.*

Groups of dark-skinned people, mixed in race and socially segregated from the white, Indian, and Negro parent races, live in many localities of the eastern United States. Distinctive names applied by the country population identify the larger groups, whose numbers may amount to ten thousand or more. Some mixed bloods live in distinct areas to the exclusion of others; but each group more commonly forms a social caste and an economic class throughout a home area within which its members may be recognized by a few characteristic surnames.

The mixed-blood peoples typically date from the settlement of their areas, derive from immigrant families of diverse origin, and owe their recognition as groups to their tremendous reproductive increase. Their numbers are often limited by available resources; the surplus drains off to cities, leaving behind the more conservative and the darker-skinned. These groups are more characteristically located in the South than in the North, and more in the Coastal Plain and Appalachians than in areas of more continuous utility.

Census and current data on the distribution of surnames suggests the past existence of a connected mixed-blood society in southern Vigrinia and the Carolinas, whose emigrants settled in other recognized sites on moving westward. Other mixed-blood groups seem to have arisen independently.

Maps show the locations of the known mixed-blood groups and distribution of typical surnames. Among the larger mixed-blood groups are those identified as Croatans in North Carolina, Cajans in southwest Alabama, Melungeons in eastern Tennessee and adjacent parts of Virginia and Kentucky, Guineas in northern West Virginia, Jackson Whites in New York and New Jersey, and Moors and Nanticokes in Delaware.

ROBERT C. WEST—*The Floating-Garden Agriculture of Kashmir and Mexico: a Case of Diffusion or Independent Invention?*

The utilization of fresh-water marshes and swamps for cultivation by nontechnical farmers is a comparatively rare phenomenon and may be classed as an advanced form of garden agriculture. Two methods of marsh cultivation among nontechnical farmers occur: (1) the raising of plots above the water surface by scooping mud from the marsh bottom (2) the construction of mud-covered mats that float on the water surface. The first is the more common method and occurs mainly in the wet lands of southeast Asia. The second process occurs only in two widely separated spots: the Valley of Mexico, where the gardens are called *chinampas,* and the Vale of Kashmir, northwest India, where the plots are known as *rádh.*

Although distinct in some details, techniques of floating-garden agriculture in Kashmir and Mexico are fundamentally similar. In both areas elongated plots are made of mats of aquatic vegetation, which are covered with mud to form a planting surface. Cultivation is intensive; elaborate fertilization is characteristic; and vegetables are the main crops in both areas. The dual occurrence of this unusual

type of marsh cultivation, a remarkable example of parallelism, raises the question of whether the phenomenon is an instance of possible pre-Columbian trans-Pacific diffusion or a case of independent invention.

At first glance the problem suggests trans-Pacific diffusion, for floating-garden agriculture is not a single trait but a complex of traits the occurrence of which in two distinct areas would not ordinarily take place without cultural contact. Moreover, recent botanical investigations reveal that certain domesticated plants native to either Asia or America were cultivated on both shores of the Pacific in pre-Columbian times. This fact indicates the strong possibility of chance or deliberate trans-Pacific voyages on which man may have transported not only plants but other culture traits.

On the other hand, the great distance btween Kashmir and Mexico, the lack of floating gardens in intermediate areas, and the presence of certain differences in techniques of garden construction and cultivation in the two areas all point to probability of independent invention. Furthermore, physical conditions in the two valleys are similar, and, although data are scant and obscure, there is no historical evidence to indicate that floating-garden culture was introduced from elsewhere into either Kashmir or Mexico.

FRED KNIFFEN—*The American Covered Bridge.*

The covered bridge is a conspicuous detail of the cultural scene. By its presence or absence in a complex of traits it aids the recognition of regions. Knowledge of the origin and diffusion of the covered bridge contributes to an understanding of why and how areas are or are not culturally like.

The American covered bridge is a product of late eighteenth and early nineteenth century New England. Southern New England and southeastern New York of this period constituted a major culture focus from which many new or adapted traits diffused to other sections of the country.

The American covered bridge was indirectly derived from Old World covered wooden bridges. New England builders guided its development along lines that produced distinctive qualities, particularly in the form of improved truss construction. Most early covered bridges were built by private investors who hoped to realize financial benefits through the collections of tolls. The primary purpose of the covering was to prolong the life of the bridge.

The first American covered bridge appears to have been built in 1793 in Rhode Island. From this beginning the bridge spread west as far as Kansas, south to the inner margin of the coastal plain, and north into Canada. It jumped the plains and mountains to become well established in northern California and western Oregon.

Cultural, historical, and natural factors determined the areas to which the covered bridge spread. Based wholly on the map of distributions, it is possible to draw a number of specific conclusions regarding the cultural relationships between different areas of North America for the great period of covered-bridge building.

Systematic treatments such as this professes to be are a necessary preliminary to regional studies, the culminating task of academic geography.

WILBUR ZELINSKY—*Where the South Begins: the Northern Limit of the Cis-Appalachian South in Terms of Settlement Landscape.*

In spite of a widespread awareness of the cultural uniqueness of the American South, there has never been any scientific attempt to map the exact limits of this region. In this study the task is undertaken for the northern boundary of the Cis-Appalachian section of the South. Because of severe limitations in the availability and quality of pertinent data the author has resorted to the observation of settlement landscape in the field as the most useful and practicable criterion for establishing the position of the boundary. The term "settlement landscape" denotes the aggregate pattern of those structures and assemblages of structures in which the activities of man are housed. The Southern settlement area has been found to possess distinctive house and barn types and a large set of regional traits pertaining to house morphology and the morphology of urban and rural settlements.

The application of these index traits results in the drawing of a line that runs, without any major sinuosities, from the northern end of Chesapeake Bay to the front of the Blue Ridge at its southern tip. On the Eastern Shore this line follows the Virginia-Maryland boundary quite closely. The sharpness of the line varies greatly, but generally its distinctness declines with decreasing latitude. The Southern culture area is juxtaposed to a wide variety of neighboring cultures, ranging from one of the subvarieties of the Pennsylvania German to the montane culture of the Southern Appalachians.

As a test of its validity, the limit of the South as determined by the settlement landscape technique is compared with the apparent margin of the South on distributional maps showing traits commonly agreed to be symptomatic of the South. The poorest correlation is obtained on a map showing vocabulary regions, but for methodological reasons the linguistic map cannot be accepted without strong reservations. A map of the strength of the Democratic vote shows a quite confusing pattern and leads to the opinion that political affiliations are not especially reliable guides to the identity of this particular culture area. A map of Negro population displays a higher correlation with the settlement landscape frontier but is not sufficiently significant to provide a clear-cut test of the technique. The most promising results are obtained with a map of the ratio between mules and horses, where the line limiting the mule area corresponds closely with the edge of the Southern settlement area.

MALCOLM J. PROUDFOOT—*The Refugee: a Definition.* (Read by title)

Natural increase or decline and in or out migration are the dynamics of population distribution and as such are basic to the study of geography. Voluntary migration, either emigration, immigration, or internal, has been motivated primarily by economic pressure and secondarily by a wide variety of personal considerations. Migration may be defined as "the movement of free individuals with the intention of effecting a lasting change or residence," but migration is not limited to voluntary population movements. Migration, likewise, must encompass the forced population movements associated with war, tyranny, and disaster. Population migration, prop-

erly considered in its totality, is not only of general concern to geography but of major significance to specialists in settlement and the settlement potentialities of regions, to demographers, and to political geographers.

In view of the confusion in the terminology of the international literature concerned with the important subject of the refugees of World Wars I and II, indicated by an examination of the special usage suited primarily to administrative expediency employed by Sir John Hope Simpson, Eugene M. Kulischer, The United Nations Relief and Rehabilitation Administration (UNRRA), The Supreme Headquarters Allied Expeditionary Force (SHAEF), and The International Refugee Organization (IRO), the following generic definition is offered:

Refugees are civilians who, as a result of war and tyranny, have been forced to move through the fear of being killed, through the fear or being forced to work, or through the fear of being degraded and deprived of individual freedom; or other civilians who have been taken captive and then forced to move against their will.

To characterize and define the nature of refugees further, it is proposed that they be placed in nine major categories, as follows:

1. Disorganized individual or mass movements motivated by domestic tryanny.
2. Organized group movements motivated by domestic tyranny.
3. Disorganized individual or mass movements motivated by the threat of war.
4. Organized group movements motivated by the threat of war.
5. Disorganized individual or mass movements motivated by foreign armed aggression during wartime.
6. Organized group movements motivated by foreign armed aggression during wartime.
7. Disorganized movements of conquered population.
8. Organized movements of conquered population.
9. Movements of captive population forced by a conqueror.

RESOURCES AND PHYSICAL GEOGRAPHY

RONALD L. IVES—*Frequency of Chinook Winds in the Colorado High Plains Region.*

Statistical analysis of the frequency of chinook winds, as reported by various agencies, using various criteria, is here presented, using data for the Fraser-Denver trajectory, during the period 1930–1948.

Chinook winds, as defined by meteorological criteria, occurred 39.26 times per average year during this time. Frequency of occurrence was greatest in the winter, maximum month being January; a secondary maximum was noted in July. Chinook winds were least frequent in May and June, with a secondary minimum in September.

Chinook winds, as reported by the residents of the plains, who observed only snow removal and temperature rise, were more numerous than those defined by stricter meteorological criteria but had a similar temporal distribution. These winds

are identical with Warm Westerlies as reported by meteorologists, and occur 52.30 times per average year.

Complete classification of the various westerly winds of the high plains region is here presented, with charts showing the frequency of chinook and other westerly winds and the criteria used in classifying them.

LESLIE HEWES—*The Northern Wet Prairie of the United States: Sources, Drainage Conditions, and Extent.*

The lack of information about the amount of poorly drained land in the humid prairies of the United States at the time of white settlement is a handicap to the study of the historical geography of the region. This study is an attempt to remedy the lack and to evaluate sources of information.

The soil possesses major indicator value of former drainage conditions. In the main, those soils described in the soil survey reports as formed under conditions of poor drainage were still charaterized by poor drainage at the time of white settlement, and were still in large part too wet for cultivation. The wet prairie of the early settlers was, apparently, only moderately less extensive than the area of soils formed under conditions of poor drainage. The conclusion is reached that soil maps and soil description are the major means available for delimiting the wet prairie.

Sources which should be checked against the soil surveys include chance historical records; relict areas of poor drainage; ecological studies; statistics from the drainage censuses, including area drained, area reported needing drainage, and original drainage condition at the time of the organization of drainage enterprises; area in wild hay (before artifical drainage had become important but after tame hay had generally replaced prairie hay in the farm economy). What should have been good sources of information, the original land survey and the location of swamp land grants, are probably the least dependable—in the first case because of frequent failure to report wet land and in the second case because of inequalities and fraud in the operation of the swamp land grants.

The two chief maps prepared show the proportion of the land judged to have been poorly drained at or about the time of white settlement: (1) within the prairies of Iowa and the large prairies to its north and east, and (2) in greater detail, Iowa alone. The northern wet prairie is defined, arbitrarily, as ending on the south where slowly permeable subsoil prevents tile drainage. The main areas with especially large proportions of originally wet prairie are the Grand Prairie of Illinois and Indiana, central and north-central Iowa, and the Red River Valley. In each case, over one-third of the land is shown as wet prairie. In Iowa, where most map categories were used, much of the wettest region was shown as more than one-half wet prairie.

W. A. ROCKIE—*The Rapid Spread of Soil Conservation Districts.*

Soil conservation districts were first evolved in 1936 and first organized in 1937 as a result of an increasing national recognition of (1) declining agricultural produc-

tion, (2) increasing erosion of farm lands and range lands, (3) initial research by erosion experiment stations, (4) interest in Soil Erosion Service work, and (5) limitations on work of Soil Conservation Service. These districts necessarily were all preceded by state enabling legislation. Formation of such districts, which began mainly in the southeast (in 1937), quickly spread over most of the country, as shown by the series of maps. The southern and eastern states took the lead in this movement from the start, and the northeast and the vast midwest wheat and corn belts were not far behind. The far west has shown a slower and much less general adoption of this movement. It now appears that practically all the private lands in the United States will be in soil conservation districts within five years.

The large areas of public lands in the western half of the country, the slow acceptance of the movement in California, Oregon, Missouri, Minnesota, Indiana, and Pennsylvania (actually opposition in parts of California, Oregon, Missouri, and Pennsylvania), and the prohibition of such districts in the Tennessee Valley Authority partially explain the absence of soil conservation districts in certain areas of the country.

This movement is erasing some of the regionalisms of long standing. The immediate and the ultimate effects of these districts on the economy of the nation is rather conjectural, because time alone holds the answer.

JOHN C. SHERMAN—*Forest Conservation in the Douglas Fir Region.*

The area of Douglas fir forests in western Oregon and Washington is so large and its timber potential is so great that a fuller understanding of forest conservation work in the region is of value to all geographers. Much of the western parts of these states, due to soil and topographic conditions, is absolute forest land not fit for any other crop. Directly or indirectly, the forests provide the source of about half the income of Oregon and Washington.

Forest conservation has become a driving necessity in this region, and new techniques have had to be developed. The shade intolerance of Douglas fir seedlings has made necessary the system of clear cutting and seed blocks. Selective logging (by individual trees) results in regrowth of hemlock and not fir. Pre-logging, reclaiming mills at the site of logging operations, post-logging, and cleaning up of slash have resulted in a 25 per cent increase in the volume brought out per acre since the war. Seed blocks have resulted in a much cheaper and faster method of insuring regrowth on cut-over land. Lack of seed blocks because of blow-down, fire, disease, or poor logging methods makes planting necessary. Coöperative nurseries supply seedlings for hand planting, and large-scale gathering of fir seeds has made possible the recent use of airplane and helicopter for air seeding of depleted areas.

To insure permanent production, over 3,000,000 acres of "tree farms" have been established in these two states. These "farms" number about 100 and range in size from 7 to 400,000 acres. Operational planning is based on a 70- to 100-year growing cycle depending on the size of the tree farm. Selective thinning and fire

and disease protection will make possible not only a timber supply but also knowledge of new and improved methods of forest management.

Wood utilization is keeping pace with the increase in potential supply. The large number of new uses of wood and wood fibers, plus integration of individual mills such as the Weyerhauser Longview plant and community industries such as that at Spokane, Washington, insure an increasingly complete utilization of the timber grown.

HEROLD J. WIENS—*The Grazing Capacity of Outer Mongolian Rangeland.*

In the critical political situation in Eastern Asia today, Soviet Russia's control over the destinies of Outer Mongolia raises questions over the nature of Mongolia's value to Russia. One of these pertains to the food exports which Russia might hope to extract from her Mongolian satellite. Since in terms of food Mongolia is almost exclusively a producer of ainmal products on an extensive grazing economy, her capacity for sustained grazing of domestic animals is significant.

The grazing potential of land depends fundamentally upon climatic factors which find their best overall expression in the nature of the vegetation cover. On the basis, therefore, of the classification of Mongolia by vegetation zones and of estimates of the percentage of the total land area in each type, worked out by Russian geographers, the present writer uses the known carrying capacities of comparable types in roughly similar climatic regions of North America to calculate the sustained carrying capacity of Mongolia for domestic grazing animals.

A recent book by G. M. Friters on Outer Mongolia lists a schedule of goals under the Five Year Plan for the annual increase of animals grazed in Outer Mongolia. These indicated 50,000,000 animals by 1945 and 200,000,000 by 1957. It is evident that this mechanical schedule of increase has disregarded the capacity of the land itself to support so many animals. Even if one assumed that all the land were long-grass prairie, the sustained capacity of Mongolia's 387,840,000 acres could support only about 78,000,000 sheep equivalents in domestic grazing animals.

After making generous allowances for the capacities of the poorer types of Mongolian lands, it is estimated that Outer Mongolia has a sustained support capacity of 5,814,300 animal units per year, or 29,071,500 head in sheep equivalents only. This compares with the figure in sheep equivalents actually supported in 1941: 50,500,000 head, representing an overstocking of the range capacity by 60 per cent.

The conclusion is that Outer Mongolian rangelands have reached a point of saturation and that the exportable food surplus is limited largely to what can be extracted from a level of production but slightly improved over that of the present.

ARTHUR R. HALL—*Two Centuries of Soil Erosion in the Piedmont Cotton Belt.*

The Piedmont Cotton Belt occupies that portion of the Piedmont physiographic province lying in south-central North Carolina, northwestern South Carolina, and middle Georgia. Almost since the beginning of settlement in the 1740's the farmers

of the region have been confronted by a serious soil-erosion problem. The history of farmland utilization and related soil erosion is traced from the initial period of pioneer general farming and stock raising, through the periods of the cotton-plantation economy and the post-Civil War expansion in cotton production based on commercial fertilizer, to the more recent period of sharp decline in cotton production due to the boll-weevil invasion and low prices.

The forms assumed by the soil-erosion problem in the different periods are discussed. Erosion was a principal factor in the field cycle of clearing, cultivation, and abandonment which characterized the agriculture of the region until recent times. Much land recleared for tillage during the post-Civil War expansion could be kept in cultivation only a short time because it had been subjected to a first round of erosion before the war. Large areas of rough and eroded land have been retired from cultivation permanently and are now in forest.

Soil-conserving techniques are being applied to the remaining farmland to a greater extent than ever before. Fundamental economic and social factors inhibit the further changes which are necessary if soil erosion is to be effectively controlled on a regional basis. These factors are listed.

An estimate is made of the relative rate of soil erosion at different dates from 1879 to 1939. The rate of erosion was probably greatest near the peak of expansion in cotton acreage about 1910.

CHARLES Y. HU—*Ten New Precipitation Maps of China.* (Read by title)

The ten maps presented are: (1) percentage of summer half-year-period (April–September) precipitation to total annual precipitation; (2) percentage of winter precipitation to annual total; (3) percentage of spring precipitation to annual total; (4) percentage of summer precipitation to annual total; (5) percentage of autumn precipitation to annual total; (6) average number of rainy days in a year; (7) largest number of rainy days ever recorded in a year; (8) smallest number of rainy days ever recorded in a year; (9) lowest recorded annual precipitation; and (10) maximum precipitation in twenty-four hours. Data from 533 stations were used for calculating and constructing maps 1 to 5.

The salient features of each of the first five maps are analyzed and their probable explanations offered.

In short, the seasonal rhythm of precipitation is very pronounced in China. Generally speaking, summer is overwhelmingly wet and winter extremely dry in most parts of the country. For instance, the summer precipitation normally accounts for between 40 and 75 per cent of the total annual precipitation in large areas of China, while the winter is responsible for only about 2 to 10 per cent of the annual total. There is an increased summer concentration of precipitation from south to north. However, in some areas of south-central China, particularly in northern Kwangtung and Kwangsi provinces, spring boasts even more precipitation (30 to 40 per cent of the annual total) than summer, a rather unusual situation in China.

This is mainly because of the high frequency of frontal-genetic activities, as well as the presence of some quasi-stationary fronts at this time, caused by the influence of rugged local topography on the numerous shallow depressions which pass this region in spring months. In several areas of south and east coastal China, owing to the strong and intense typhoonic influences, autumns are also wet, accounting for about 10 to 20 per cent of the total annual precipitation.

On the whole, one of the most important factors affecting the seasonal distribution of precipitation in many areas of China is the formation and migration, as well as the intensity and relative strengths, of fronts between the polar air masses and the maritime air masses. Normally the average position of this frontal zone lies around South China in late spring, advancing gradually northward, reaching the Yangtze valley in early or middle summer, and shifting to the North China Plain and Northeast China (Manchuria) in late summer. This corresponds fairly well with the general patterns of months of maximum precipitation in these areas respectively. In fact, the rainiest month is May or June in South China but June or July in Central China and July or August in North China.

HISTORICAL, BIBLIOGRAPHICAL, AND PROCEDURAL

JOHN K. WRIGHT—*American Geography in the Eighteen Fifties and Sixties.*

The American Geographical and Statistical Society was founded in 1851–52 (the words "and Statistical" were dropped in 1871). During its first twenty years the Society was the only institution of its kind in the United States. Its work reflected the scope and nature of American geography in this period. The Society's conception of geography was broad, its members were mostly young men, and its vigorous activity helped raise professional standards of achievement in our field, even though there was no geographical profession, as such, at this time. The manuscript records and publications of the Society show that a lively interest was taken in the bearing of geography on mercantile and missionary enterprises, in exploration (particularly of the Arctic and of Central Africa), and in the application of geographical knowledge to such great engineering projects as the trans-Atlantic telegraph, the transcontinental railroad to the Pacific, and the construction of a ship-canal across one of the middle-American isthmuses. At several of its meetings, moreover, the Society listened to addresses that foreshadowed future lines of development in our field as well as to others in which the lofty nature and exalted objectives both of geography and of statistics were somewhat extravagantly proclaimed.

CHAUNCY D. HARRIS AND JEROME D. FELLMANN—*A Census of Geographic Serials.*

I. Serials as a form of geographic literature and a source of geographical data
   1. Sources of geographic data
   2. Relation of geographic serials to other serials

II. Types of geographic serials
   1. By regularity of publication
   2. By type of publisher: societies, universities, commercial, etc.

III. Number of geographic serials and the distribution of their places of publication
   1. Number of serials
   2. Distribution of place of publication: dot map
   3. Summary of serials: by country, by cities, by languages

IV. Historical shifts in relative importance of various centers of geographical publications

V. The key geographic serials of international significance

VI. Libraries; comparative strength of leading libraries in collection of geographic serials

OTIS P. STARKEY—*A Proposal for a Regional Inventory of Geographic Studies.*

The author proposes a joint inventory to be conducted by university departments to list and plot on state maps all regional studies completed for the United States. Such studies should be assembled and distributed as a bibliography. The completed work would indicate graphically neglected areas in American geography.

RICHARD F. LOGAN—*A Geography Camp in a Mediterranean Environment.*

During the summer of 1949, the geography department of the University of California at Los Angeles inaugurated a program of summer field work, planned primarily for graduate students.

Following a week on campus devoted to lectures and readings to provide a background for field work, the group visited two contrasting areas of southern California.

The inland Cuyama–Carrizo area—a western extension of the Mojave desert—was studied for a week by reconnaissance methods. The group found it to be a region of aridity, sparse vegetation, and extensive grazing, with some raising of crops under irrigation from deep wells, and feverish activity in connection with a very new and highly productive oil field.

The greater part of the summer was spent in the vicinity of Ventura. In this mountain-girt lowland, open to the sea at the west, greatly contrasting forms of agriculture were observed. On the irrigated lowlands, citrus fruits, avocados, walnuts, seed flowers, lima beans, and sugar beets are cultivated intensively. In the areas without a good water supply, nonirrigated fruits (such as apricots for sun-drying) and grain (cut for "grain hay" when it fails to mature in drought years) are grown. The hillier and the drier areas are ranges for beef cattle.

The students practiced the techniques of topographic mapping: making planimetric and contour maps by both triangulation and traverse methods, using the plane-table, alidade, clinometer, hand level, and Brunton compass.

The main emphasis of the course was upon the study of several sample areas, which presented nearly every aspect of the region. Two maps were made of each area by each student. One, drawn on the Government topographic map, indicated the landforms; the other, on an acetate overlay superimposed on an aerial photo, recorded the land use by means of a numerical notation system. On the basis of these, plus information obtained from the staff and from agricultural experts as well as by local inquiry, each student wrote a report on the Ventura lowland.

In addition, each student pursued the study of an economic enterprise or a feature of urban geography. Topics included the decline of the apricot industry, the rise of avocado culture, the oil tool industry of Ventura, and an urban analysis of Ventura. The writing of these reports and the preparation of the accompanying maps was done in the final week, on the Los Angeles campus.

POLITICAL AND REGIONAL GEOGRAPHY

COLBERT C. HELD—*Recent Political-Geographic Changes in the Saarland.*

The recently created European *de facto* polity of the Saarland and events concerning it have received scant notice in this country. This study considers the Saarland's post-World War II frontiers and some salient geographical facts concerning them and their modifications.

After mid-1945 the Saar was constituted as one of the four *Länder* in the French Zone of Occupation of Germany. The French soon indicated that they had special plans for the Saar, including detaching it politically from Germany, establishing it as an autonomous unit, and integrating it into the French economy. As originally defined in 1945, the Saar comprised virtually the same area as that of the "Saar Basin" set up by the Treaty of Versailles, and such encouragement as was given to the French plan by the Anglo-Americans was largely on the basis of these former boundaries. However, in July 1946 the French, somewhat unilaterally, extended the frontiers of the Saar to the west, northwest, and north, increasing the area by 48 per cent to 1,106 square miles. A year later the French relinquished the Saarburg area on the northwest but added a small area, the Ostertal, on the northeast. The net decrease effected by this second modification reduced the Saar area to 988 square miles, still one-third greater than the original Saar Basin. A third modification was made in April 1949 when the municipality of Kirrberg was annexed on the eastern frontier, giving a present area for the present Saarland of 991 square miles.

The extension to the west, giving the Saar a common frontier with Luxembourg along the Moselle River, eliminates the short direct contact of France with Germany and eases somewhat the difficulty of customs surveillance. It also gives the cropland-deficient Saar a little more agricultural area without a corresponding increase in population.

The northward extension was made to incorporate the upper slopes of the Hunsrück Foreland, which has close economic ties with the core area of the region around Saarbrücken. The shift also reflects one of the most significant socio-eco-

nomic-geographical facts in the Saar problem—the existence of the widely distributed farmer-miner, who owns his own home and land and prefers to live on the land at considerable distance from the coal mines and commute daily. The northward extension unites the farmer-miner residential area with the mining and industrial area in the southeast.

Inclusion of the Kirrberg region was effected on the basis of its economic ties with the Saar as a result of its location at the foot of the westward-facing Lorraine escarpment.

The new frontiers afford a more effective geographical basis for the Saarland with its present *raison d'être*. Thus, a new quasi-state has grown in Europe and is awaiting a *de jure* status, although the difficulties to be anticipated were suggested in the Franco-German friction which developed in January 1950.

THEODORE SHABAD—*The Administrative-Territorial Evolution of the USSR as a Guide to the Nation's Economic Development.*

The paper presents a brief discussion of a research method that has been used during the past few years in a study of the economic development of the USSR. The method is based essentially on the premise that the administrative structure of the Soviet Union is in part a function of economic factors and as such can be used to gauge some features of economic development, such as the creation of new industrial centers, the opening of mines, and the construction of railroad lines.

In keeping a complete record of all administrative changes occurring in the USSR, it has been possible not only to note the establishment of new towns and cities in the country but also to identify some of these new urban centers with specific industries. As an illustration, the construction of three new steel plants is described in terms of the effect these projects had on the administrative-territorial structure of the Soviet Union.

J. A. MORRISON—*The Urge to the Sea: a Fallacious Explanation of Russian Expansion.*

American history and geography textbooks have long explained Russia's territorial growth in terms of an "urge to the sea," of a "desire for warm-water ports." As a result, this notion has become deeply imbedded in American thinking about Russia. It makes Russian expansionism seem natural and reasonable, even to persons who have no sympathy for the Soviet regime. Its acceptance by Churchill and Roosevelt led, at Tehran, to their offering Dairen to Stalin even though he had not requested it. By legal occupation of Dairen the Moscow regime insured Chinese Communist control of Manchuria, the base from which they were able to conquer all China.

Examination of the history of Russian territorial growth shows that only in one direction, to and along the shores of the Baltic, was this expansion motivated consciously, persistently, and primarily by a desire for outlets to the sea. The northward expansion in the days of Novgorod and the later drive across Siberia were

motivated almost entirely by the desire for furs. Once the Russians reached the Pacific there was a need for good harbors on which to base their Pacific squadron and to provide a means for supplying posts in the Far East by sea from European Russia. The port of Dairen was acquired by imperial Russia not as a "warm-water outlet" to the sea, but as a base for further expansion in the Far East. Dairen is the natural port for South Manchuria only.

The expansion southward to the Black Sea was, up until its last phase, due to the need for grain-growing land and to the necessity for containing the Crimean Tatars; even in the final phase when estate owners and grain merchants in South Russia demanded port outlets on the Black Sea, other motives were of equal or greater importance.

There is no evidence in the historical record that the expansion across the Caucasus and into Central Asia aimed at the acquisition of "warm-water ports" on the Persian Gulf and the Indian Ocean. The movement across the Caucasus was to support the Christian kingdom of Georgia under attack by Persia; subsequent territorial acquisitions in the Trans-Caucasus were the result of victorious wars with Persia and Iran. The conquest of Central Asia was a by-product of punitive expeditions against the Turkomans of the Khiva oasis.

To generalize from the one direction in which Russia's expansion was primarily due to a conscious drive for ports and to build from it a geopolitical explanation of Russian expansion in *all* directions is justified neither by the historical record nor the realities of geography. At best it deflects attention from the real aims of Russian expansion; at worst it leads to the unnecessary surrender of important strategic positions.

GEORGE J. JENNINGS—*Regionalism and the Missouri River Basin.*

The Missouri River Basin Development Project is illustrative of common confusion regarding regionalism. "Region" as a basic concept of geography is not clearly defined; consequently, the term deteriorates from one of descriptive accuracy to one of useless ambiguity. Geographers must reassert the essential definition of regionalism; namely, the homogeneity of natural and/or cultural factors in areal extent. When such definition is provided, planning—national, regional, or otherwise—will be aided considerably; and problems common to those of the Missouri Basin will be viewed in total relationship with all important factors; errors which accompany spatial fragmentation will thus be reduced.

DERWENT WHITTLESEY—*Regional Geography and the Geographic Region: Interim Report of the Centennial Studies Committee on Regional Geography of the Association of American Geographers and the National Research Council.*

The italicized key words below are intended to serve as touchstones to an outline which will be read in six parts, separated by brief periods of discussion—averaging not longer than 3-1/2 minutes.

PROPOSITION ONE. Theme of regional study—
areal differentiation, into
homogeneous segments of the earth, i.e.
regions, by means of setting up
criteria, to achieve an announced kind of
areal units.

PROPOSITION TWO. Categories of areal units—
categories of regions run in a continuous series from simple to complex:

1. differentiated in a *single feature,*
2. differentiated in a *combination of features* less than wholes,
   a. *intimately associated* features,
   b. *loosely associated* features,
3. differentiated in *place-and-people as wholes.*

PROPOSITION THREE. Homogeneous regions are either uniform or nodal—earmarked by *index features:*

1. every region in all categories is
   a. *unique* in location,
   b. *four-dimensional,*
   c. analyzed by *inherent traits,*
   d. fixed in a *hierarchy of subdivision* (*or aggregation*),
   e. *homogeneous;* in addition,
2. *uniform* regions are
   a. *structureless,*
   b. *differentiated in the core;* in addition to indices in "1"
3. *nodal* regions are featured by
   a. *internal structure,*
   b. *focus,*
   c. *core and periphery,* reciprocal,
   d. *flow.*

PROPOSITION FOUR. The category of regional wholes—
studied only *by* those working as *geographers;*
breaks down into a hierarchy of *six levels:*

a. *locality,*
b. *district,*
c. *province,*
d. *major region,*
e. *realm,*
f. *world;*

may or may not be marked by *regional awareness.*

PROPOSITION FIVE. Procedure can vary within limits—determined by *objective* and guided by criteria selected;
three *modes of operation* are open:

1. the region treated for its own sake—*diagnosis,*
2. the region treated as to prospects for change—*prescription,*
3. the region treated for the purpose of alteration—*nostrum.*

PROPOSITION SIX. Geography appears as a monistic discipline—
the traditional *dualistic* aspects of the subject are not useful:

a. systematic vs. regional geography,
b. physical vs. human geography;

the *monistic* viewpoint embraces geography and its parts:

1. within regional geography a continuous series of regions from single features to geographic wholes,
   a. uniform,
   b. nodal;
2. in geography entire, three branches:
   a. topical,
   b. regional,
   c. topical-regional.

CARTOGRAPHY, GEOMORPHOGRAPHY, AND AERIAL PHOTOGRAPHY

EUGENE MATHER—*A Study of Landforms in the Sand Hills of Nebraska: an Experiment in Geomorphography.*

The purpose of this paper is to state primary objectives of geographical landform analysis and to demonstrate the application of these objectives in a study of the Sand Hills of Nebraska. The work of geographers in landform analysis has often contributed little to the needs of geographers. Studies focused upon rock structure, process, and time sequence in landform development may be of paramount significance to geologists but are peripheral to needs of geographers. To fulfill the basic wants of geography, a landform study in any area should answer primarily:

1. What are the geometrical characteristics of the landforms? (i.e., size and shape of landforms, and nature of surface materials)
2. What is the areal distribution of these landforms?
3. What is the significance to man of these landforms within the composite natural-cultural geographic landscape?

Following are the main topographic features in the Sand Hills of Nebraska:

1. Broad, high ridges, unevenly mantled by sand in an array of minor swells and swales. These ridges are usually 60 to 120 feet high, 700 to 2,000 yards wide, and one to tens of miles long.
2. Broad, high dunes without linear arrangement. They have about the same relief as the broad, high ridges but are somewhat oval-shaped and are about 700 to 2,200 yards wide.
3. Low, closely spaced dunes having marked lineation. These dunes, often spaced 120 to 200 yards apart, are usually 10 to 60 feet high, 50 to 80 yards wide, and over one-half mile long.
4. Low, closely spaced dunes without pronounced lineation. They are usually lower and shorter than the preceding type.

5. Low, ovoidal and semiovoidal dunes which are mostly 8 to 50 feet high.
6. Broad depressions. These are between dunes or ridges that are high and broad or are along the streams. Those in lacustrine sections are rather oval-shaped.

Included are aerial photographs of major features, and maps showing orientation and areal distribution of lakes, streams, and various landforms.

The importance of the topography from the standpoint of land utilization is described, and problems associated with individual types of features are noted.

The geomorphographic analysis appears adapted to the geographers' needs in this region. In the absence of any overall landform classification, it is hoped that, after a number of properly focused regional landform studies have been made, geographers will be able to agree on a system of landform classification for one or all landform types.

PHILLIP MARSHALL HARRIS—*The Slope Indicator.*

The Slope Indicator (Figure 1) was developed, in part, to help the student to understand the relationship between map scale, contour interval, and contour density in representing slope of the land on a contour map. Most contour maps, especially those in the large-scale bracket, are sufficiently accurate to permit precise interpretations of the lay of the land within the limits of the contour interval used. However, guess methods have been observed to be in general use, and such interpretations of slope may be hazardous, in the light of the numerous map scales and contour intervals in common use in the United States.

The Slope Indicator is a graduated scale showing selected spacings of contour lines, together with indications of the amount of slope represented by these spacings as they appear on topographic maps. The indicator is used by matching the spacings of the contour lines on a map to one section of the indicator scale (A—B in Figure 1). An indication of the slope at the place matched will be found directly below the matching lines, in the row corresponding to the map scale and contour interval of the map being examined.

The indicator is an extension of a contour density indicator used by Raisz and Henry in the preparation of an average slope map of southern New England and described by Raisz in his *General Cartography* (McGraw-Hill, New York, 1948). The use of the Slope Indicator in its present form has been limited largely to teaching students to interpret contour maps accurately. It may be used also in delimiting areas on a map into selected categories of slopes in connection with regional or area analysis. It is also believed that the Slope Indicator or some adaptation of it may be of some use in preliminary engineering map studies of slopes along proposed roads, highlines, pipelines, and the like.

FINN RONNE—*Antarctic Mapping and Aerial Photography.*

Aerial photography for mapping has revolutionized Antarctic exploration, but must have ground control. The Ronne Antarctic Research Expedition solved this

problem and extended the photographic coverage by using two airplanes in a "leap-frog" operation, one hauling gasoline for the other and providing rescue insurance. Numerous landings by one or both planes gave opportunities to determine positions astronomically and record the bearings of prominent features. A sledge party supported by air provided additional ground control, weather data to supplement those from two manned stations for flight forecasts, and additional rescue insurance in the most remote part of the operation. Careful advance planning and scheduling of each phase of the Expedition's program made it possible to obtain under adverse conditions more than 14,000 trimetrogon photographs of more than 700,000 square miles, of which 250,000 square miles was newly discovered. Shoran, radar photography, and radar altimeters can make future expeditions less dependent upon fickle weather for collection of data, though operational hazards will still be present. Small private expeditions will have increasing difficulty in outfitting with complex modern equipment.

ARTHUR H. ROBINSON—*Possibilities for Precision in Selecting Map Projections.*

The problem of selecting projections for today's "one world" from the hundreds of methods, phases, and orientations available is difficult. This is particularly true for maps of the whole earth. Once a projection class, such as equivalence, has been chosen, together with any necessary attributes, such as parallel parallels, probably the next most important projection characteristic is the amount of angular deformation and its distribution in relation to the land areas of major interest on the map.

Distortion in some respects is measurable, and a French mathematician, Tissot, developed a technique for measuring it about 70 years ago. He showed that on all map projections an infinitely small circle at any point on the sphere is projected as an ellipse. The deformation values at various points on a projection are derived by analyzing the projected ellipses with respect to the changes which have occurred in area or angular relations. The values may be graphically presented by constructing isometric lines of equal deformation, either angular or areal. Further, it is possible to measure the areas enclosed by succeeding iso-lines and to determine, in the manner of a hypsographic curve, the mean value of the angular or areal deformation for the entire projection. This technique of complete coverage by iso-lines and the determination of mean values is of importance for comparing visually the various projections and is particularly helpful in teaching.

The land masses together with the enclosed seas are usually, however, the foci of interest on world maps. Hence, the relationship between the pattern of angular or areal deformation of a particular projection and the land masses plotted thereon is more significant than the overall pattern or the mean value alone. Consequently, the amount and distribution of the deformation occurring within the land areas is being investigated. Deformation in the Miller Cylindrical and the Homolosine are presented as examples.

This approach to the problem of determining the finite deformation inherent in map projections does not answer all the questions that the chooser of projections

will have. We should, however, approach the selection of projections in as precise a manner as possible; and it would be most helpful if authors who present new projections, or modifications of old ones, would present at the same time this kind of quantitative analysis of their deformations. Thus, any tendency toward convention or mere inspection on our part, no doubt somewhat subjective, would be counterbalanced by precise knowledge.

CLYDE F. KOHN—*Aerial Photo-Identification Keys for Rural Settlement Features.*

Rural settlement features when identified on aerial photographs may be used to determine the economy of an area. Their character and arrangement reflect circumstances of land ownership and land value as well as social customs and traditions, and are conditioned, in part, by the elements of the natural environment.

The process of identifying rural economies from aerial photographs involves the recognition of three groups of settlement features: those which are conspicuously portrayed; those less conspicuously portrayed; and those which can be determined only by stereoscopic examination. The first group includes field patterns, roads, and farmsteads; the second, farm boundaries, road turnings, and farm lanes; the third, individual buildings, minor farm features, and rural nonfarm features.

A comparison of these three groups of settlement features as they appear on aerial photographs of the southeastern Wisconsin fluid milk dairy region with their appearance on aerial photographs of the North Dakota spring wheat region demonstrates the identification process. With practice it is possible to identify each of these features by its tone, shape, size, and association with other features.

The arrangement of settlement features is conditioned by the nature of the local terrain. Deviations of roads from the established pattern, breaks in the spacing of farmsteads, piles of stones in cultivated fields, and the architecture of the buildings are all important indicators of natural conditions. To be complete, work in terrain analysis should include a study of the rural settlement features.

ECONOMIC GEOGRAPHY

MUZAFFER ERSELCUK—*The Role of Resource Studies in Stock Market Investigations.*

In the esoteric realm of stock market analysis, the established criteria is based in essence upon an evaluation of the immediate and apparent internal financial structures of those companies considered, and, to a greater extent, upon the manner in which the stock behaves in the market transactions. For short term considerations this may prove a sufficiently efficacious method of determining the immediate value of a stock. However, for a long term such a practice neglects other very important factors. Among these may be found raw material reserves and their future utility to the company within industrial framework, location of plants, distribution facilities, etc.

The financial factors of stock evaluation hinge in their importance on broader considerations. In the evaluation of large companies and vast industries, and especially in the long term picture, no matter how thorough the investigations of internal financial structures, they are superficial and inadequate.

The economic functioning of a company depends on that margin of efficiency it may maintain not only through internal operations, but also through efficient methods of securing raw materials and distributing the finished products over long periods of time. Resource studies and analysis of location factors tend to evaluate the long run picture. It must be indicated, however, that the resource study must consider not only the more apparent existing conditions within a unit as to immediate access to sources of raw material, energy, man-power, and markets, and the kind of position is may occupy in regard to technological developments; but also what the trends connected with all these may portend for the future.

In the long run economic access to, and utilization of, the resource that a company controls will determine the value and the earning power of the company stock. Since the price system in a capitalistic economy does not emphasize future values as much as present values, an evaluation of resource holdings of certain companies in terms of future utility, made at this time, may indicate the possibilities of its stock appreciation.

The following factors should be considered in the resources application of stock market analysis:

1. The total resource available
   a. location
   b. concentration
   c. controls
2. The factors of plant location in regard to possible shifts
   a. raw materials
   b. markets
   c. population
3. Position of the company in regard to possible substitution of resource
   a. natural substitutes
   b. synthetics
   c. research being carried on
   d. control of patents

The above points will be illustrated in the paper by examples from industry.

The resource analysis of the stock market can be useful as a supplement to conventional analysis and the purpose of this paper is not to acclaim the resource study as the sole factor in the evaluation of stocks.

MERLE PRUNTY, JR.—*Quantitative Factors in Delimiting Cotton Production Areas in the Southeastern States.*

Since 1927, when O. E. Baker delimited the United States Cotton Belt in *Economic Geography*, substantial changes have occurred in distribution of cotton-growing areas and volumes of cotton locally produced. Total acreages planted to cotton

in the Southeastern States declined about 48 per cent between 1924 and 1944, but total production increased slightly. Per-acre productivity increased nearly 100 per cent, with the most noteworthy increases occurring in the eastern segments of the old "Cotton Belt." The greater proportion of the cotton crop now produced in the Mississippi Valley and eastern districts results from substantial increases in per-acre productivity.

Baker's 1927 delimitation of the Cotton Belt was based upon outer limits of cotton production. Non-cotton-producing enclaves were disregarded. The conception of the Cotton Belt as a continuous region from Virginia to New Mexico was partially erroneous in 1927 and has become more so in recent years. Until an article by F. C. Erickson appeared in *Economic Geography* in 1948 no one had noted that the old belt now was discontinuous. Erickson's map of the Cotton Belt in 1945 appears to have been based upon a subjective interpretation of dense clusters of dots representing cotton production.

Mapping to show value produced by lint cotton as a percentage of all farm products sold delineates fairly satisfactorily the outer margins of secondary cotton production and also the western high-density regions but fails to identify eastern high per-acre producing areas. Similarly, mapping of proportion of total cropland planted to cotton fails to identify the eastern cotton districts because their high per-acre productivity is not measured by this device. The above procedures exclude proportionate measurements, in terms of the total landscape, that are geographically important, since woodland occupies more than half the total area in most Southeastern States.

Measurement via percentage of land in cotton in the total area rationalizes the above difficulties and delineates the major production districts in accordance with field observations. This procedure appears the most desirable means for areal delimitation of the present cotton belts.

Net results of productivity changes, acreage decreases, volume changes, and areal shifts in production between 1924 and 1944 are: (1) an eastward shift in center of cotton production, (2) a decline in size of high production districts, (3) emergence of seven districts as the "Cotton *Belts*" of the Southeast, (4) declining significance of cotton about the periphery of its production area, and (5) secondary importance of cotton in most southeastern areas today.

NORTON S. GINSBURG—*Future Japanese Trade Orientations.*

The need for the reëstablishment of Japanese trade is generally acknowledged in both academic and Government circles in the United States. The problem of the future orientations of this trade is of interest to citizen and geographer alike.

The loss of the former Empire areas—Korea, Manchuria, Taiwan, and Karafuto—is a major one in trade terms, but except for Karafuto and especially in the case of Manchuria, this loss may be balanced somewhat by the elimination of political and military expenditures and the need for developmental capital and capital goods.

In Manchuria at least, these expenditures failed to give adequate economic returns in the limited time available. In any case, trade with all of these areas must remain depressed relative to the prewar period, although Taiwan may be brought more easily into the Japanese orbit once more.

Trade with China likewise will remain below prewar levels due to political tensions and to the diminution of Chinese production of cotton and an increase in her output of cotton textiles. Trade with the United States, of course, is at present high—75 per cent of Japan's imports come from this country—but with the decline in American demands for silks it seems unlikely that Japan can afford to maintain an increasingly unfavorable balance in her trade with us.

In effect, then, Japan's prewar patterns of trade will be changed in radical fashion. The most likely areas in which she should be able to regain her trade position and perhaps improve it will be in the so-called underdeveloped areas of the world, especially southeastern and southern Asia. In southeastern Asia neither the market nor the raw-material possibilities have been more than explored. In that area there appear to be both the raw materials that Japan needs and also relatively untapped markets for inexpensive producers' and consumers' goods, centered about the newly created United States of Indonesia. In the case of India, the kinds of commodities needed will include less cotton textiles, which Japan is finding increasingly costly to produce, and more light machinery and manufactures, especially silk and silk textiles. In any case the trade between industrialized middle-latitude Japan and the relatively less industrialized areas of subtropical and tropical Asia possesses many elements of the classical pattern of interchange between countries of differing resource endowments and production capacities. The same points hold, to a lesser extent perhaps, for those areas in Africa and Latin America which Japan was cultivating in the prewar years, but these areas appear of considerably lesser importance than those in greater proximity to Japan.

In the light of these possibilities it seems sound to urge as part of the President's Point Four Program that trade between Japan and the underdeveloped areas, particularly those of southern and southeastern Asia, be actively encouraged by the United States as a partial means for placing the Japanese economy on a sound basis and removing it from the shoulders of the American taxpayer. At the same time, since the appeal of Japanese exports is based in large part on their low cost, the promotion of Japanese merchant-marine development should be a major corollary to the more general program.

E. WILLARD MILLER—*Penn Township: an Example of Local Governmental Control of Strip Mining in Pennsylvania.*

Since coal strip mining has increased greatly in importance in Pennsylvania in the last decade, problems of land reclamation have resulted after mining has stopped. In recent years, particularly, there have been growing demands for an effective restoration of the spoil banks. Several of the more progressive coal companies have reclaimed small areas, and in 1945 Pennsylvania passed a strip mining conservation

law. While both of these programs appear to be ineffective at present, there is one area which has had effective control of strip mining since the beginning of mining in 1940 as a result of local governmental regulations. This area is Penn Township, which lies in Allegheny County on the northern boundary of Pittsburgh. It is the purpose of this paper to investigate strip mining and the reclamation program at the local governmental level.

Since the beginning of strip mining in Penn Township in 1940 approximately 2,100,000 tons of coal have been mined and more than 220 acres have been disturbed and then restored. The control of reclamation is made possible by the Penn Township Zoning Act of 1940, which regulates the use of all land in the township. Strip mining can only take place as a variance to the existing code. In order to insure complete recovery of the spoil banks, a bond of $1,000 to $3,000 per acre is required to be posted, and no bond is released until the ward inspector indicates that all residents of the ward are satisfied with the reclaimed area.

Penn Township is the only area of even moderate size that has a successful reclamation program in Pennsylvania. It has been a common argument of strip miners that reclamation will destroy the strip mining industry, for restoration will consume all profit. The facts that mining has continued in Penn Township for ten years, essentially all surface coal has been mined, and no bond has ever been forfeited illustrate that complete restoration can be a part of the mining procedure. Penn Township is an outstanding example where control on the local governmental level has been wholly successful. It could well serve as a pattern for other townships, boroughs, and cities in the state.

JOHN W. ALEXANDER—*Expansion of Manufacturing Belts in the United States, 1939–1947.*

One of the most significant developments in the economic structure of the United States between 1939 and 1947 was the sharp increase in manufacturing. In 1939 there were 7,818,000 production workers in American factories; in 1947 there were 11,918,000. This represents an absolute increase of 4,100,000 and a relative increase of 52 per cent. Such growth was almost six times that of the population, which increased only 9 per cent in that eight-year span.

A series of four maps presents a partial answer to the question, "Where did this growth in manufacturing occur?"

Map 1. *Number of Production Workers by Counties, 1939.*

Map 2. *Increase in Number of Production Workers by Counties, 1939–1947* shows that most of the growth was in the very same regions which are conspicuous on Map 1. Five industrial areas (New York, Chicago, Los Angeles, Detroit, and Philadelphia) each experienced a growth exceeding 100,000 production workers, and collectively they accounted for over one-fourth the national growth.

Map 3. *Percentage Increase in Number of Production Workers by Counties, 1939–1947* shows the slowest rates of growth to be in the east. This area of slower growth includes New England and practically all of the rest of the

eastern seaboard. The widest expanse of rapidly growing industrialized counties focuses on the southern littoral of Lake Michigan but extends into Ohio. Of the 15 industrial areas having a force of 100,000 or more workers, Los Angeles grew the fastest—at a rate of 121 per cent.

Map 4. *Number of Production Workers by Counties, 1947* represents a summation of the 1939 pattern plus the changes shown on Maps 2 and 3.

WALTER ISARD AND JOHN H. CUMBERLAND—*New England as a Possible Location for an Integrated Iron and Steel Works.*

The iron and steel industry is transport oriented. Cost differentials in transporting raw materials to the plant and finished products to the market are of a greater magnitude than other cost differentials. Up to 1850 the locational pull of coal sources was clearly dominant. Because of the large quantities of coal required, transport savings on coal made possible by a location at a coal site were greater than transport savings on ore or finished product by a location at an ore site or market. But continuing technological improvements have greatly reduced coal consumption per ton of steel. And, as the industry has matured, scrap has been substituted for pig iron. This has sharply cut requirements of both ore and coal. Considering that location at an old established market generating scrap usually permits considerable savings on scrap transport, and that transport rates on finished articles are significantly higher than on raw materials, the pull of an old established market now seems to be stronger than the pull of either an ore or coal site. Future developments indicate increasing relative strength of the market pull. However, to be eligible as a steel center, the market usually should be able to absorb the output of a large-scale integrated works.

Accordingly, New England, an old established market, which in the past was ruled out by lack of ore and coal, now qualifies as a potential steel center. Labrador ore should become available at reasonable rates. Even with an integrated works, New England would still be a surplus scrap area and would enjoy some scrap price advantage over most of the old production centers. Long haul on coal would be its major disadvantage. Its chief advantage would accrue from low transport costs on finished goods to the local market. Our tables indicate that for serving the major consuming points in New England, steel location at points such as Fall River and New London would occasion transport savings of several dollars on the average over the better-situated production points now serving New England. As for other cost factors, Fall River and New London do not appear to be at any major disadvantage. Our data on New England steel consumption indicate that over and above the capacity of existing steel facilities there exists a demand for ingots and slabs, bars and shapes, sheet and strip, structural shapes, and plates alone sufficient to allow a local works to achieve most of the economies from integrated operations.

ALLAN RODGERS—*Industrial Inertia, a Major Factor in the Location of Steel Production in the United States.*

Industrial inertia is one of the major factors in the location of steel production in the United States; it has served to "de-emphasize" the importance of markets as an

industrial location factor. On a theoretical basis, three major factors should be of nearly equal importance in determining the steel location pattern. These are relative location with respect to sources of coal, to sources of iron ore, and to markets. However, if relative freight rates are taken into consideration, the market factor should have more than double the attractive force of either coal or iron ore. An analysis of steel production and steel consumption data reveals a basic disparity between these two phenomena. Therefore, markets for steel products have not played the dominant role in the location of steel production. The most important reason for this lack of conformity is industrial inertia.

Steel production requires tremendous investments in relatively permanent capital equipment, and costs of new construction are extremely high. Therefore the industry has been reluctant to construct new plants in response to the growth of new and distant market areas. Yet the established mills had to sell in these markets at a profit to survive. To solve this problem the steel industry adopted the basing point system. Although this pricing policy was not unique to this industry, it was here that it had its greatest effects on the overall economy of the nation. The main purpose of this system was to enable producers in established districts to quote a price which was identical with that of producers situated nearer to the consuming market. In other words it was an attempt to eliminate geographical position as a substantial element in competition. The basing point system was declared illegal in 1948, and as a result the industry adopted an f.o.b. mill system of pricing.

It is still far too early to judge what effects this change has had on the locational pattern of steel production. Undoubtedly the new pricing system will promote a greater dispersal of the industry in accordance with markets for steel products. As the industry expands its capacity or replaces obsolescent equipment, new plants will be built nearer consuming areas. To some extent this shift will be stimulated by the increasing use of foreign ores occasioned by prospective decline in the Upper Lakes high-grade ore production.

ALBERT S. CARLSON—*Steel for New England.* (Read by title)

The growth in metal-consuming industries in New England in recent years makes the region one of the largest areas in the nation without an integrated steel plant. New iron-ore supplies, changing technologies of steel production, increased freight rates, and change from the basing point system of pricing to f.o.b. point to a high cost, in New England, of steel from plants now sending their products to the region, while costs of production of steel in a tidewater mill have become comparable with costs in those plants.

New England business men, through the efforts of the New England Council and the Federal Reserve Bank of Boston, are leading a movement for the establishment of a mill to produce 840,000 tons of flat steel products annually. There is a market, in terms of steel consumption, of two to three times this output, and New England produces only 400,000 tons at present. Iron ore from Labrador, coal from West Virginia, limestone from New England or New Brunswick deposits, a

supply of cheap scrap, electricity from the steam from the steel process, a modern plant on a suitable tidewater site, and satisfactory water supply will combine to produce steel at a cost low enough to assure profitable operation. It is hoped that a special financing authority will provide low-cost funds for this $240,000,000 plant.

Opportunities and problems involved in the decentralization of steel centers and the establishment of a steel plant in a new and growing steel market are highlighted in this study of the economic-geographic factors determining the suitability of New England sites for steel production.

REVIEWS AND ABSTRACTS OF STUDIES

A TRANSLATION OF A RUSSIAN WORK

L. S. Berg: *Natural Regions of the U.S.S.R.* (translated by Olga Adler Titelbaum) xxxi + 436 pp., translated from the Russian under the editorship of John A. Morrison and C. C. Nikiforoff. New York: Macmillan, 1950.

This is a volume which will be welcomed and praised by all students of Soviet geography; and one which will reflect credit on Russian geographers themselves. Such a comment is particularly appropriate in view of the fact that this is the second volume to be published under the Russian Translation Project of the American Council of Learned Societies. The first was Balzak's *Economic Geography of the USSR*, a revealing picture of current developments, but heavily interleaved with references to the geographic leadership of Marx, Lenin, and Stalin. The names of these men do not appear in Berg's volume; instead, we have a straightforward scientific evaluation of natural regions from the standpoint of their vegetation.

Professor Lev Semenovich Berg is the dean of Russian physical geographers, with distinguished contributions in a dozen fields going back to 1895. These include major research publications in ichthyology, climate, fauna, regional geography, and the history of geography. He has published no less than 480 titles. For these he has deservedly received the highest honors of the Geographical Society.

Berg defines geography as the science which studies landscapes. This led Berg in 1930 to publish his synthesis of physical geography entitled, "The Landscape—Geographical Zones of the USSR". The same ideas appeared later in his "Priroda SSSR," or "Natural Regions of the USSR," in 1937. A revised version the following year is the basis for the volume under review. This volume deals extensively with fauna and flora so that it becomes almost a handbook. The title is correct, for Berg deals with the *natural* regions rather than with the total physical and cultural landscape which makes up the *geographic region*. No better regional volume on the Soviet Union has yet been written.

The volume contains twenty chapters. Eight deal with lowland landscapes from the tundra to the desert, organized on a vegetation basis. The remaining chapters consider the varied landscapes of mountain areas. The book is well supplied with indices, a glossary, 30 tables, 23 maps, and 81 illustrations.

The organization of the typical lowland chapter is indicated by a list of the usual topical headings. These are Boundaries, Subdivisions, Climate, Relief, Drainage, Soils, Vegetation, and Fauna. Natural vegetation receives the major emphasis and only passing reference is made to mineral resources, land use, or people. The mountain chapters follow a similar pattern, with proportionally fuller treatment of relief and the details of climate and vegetation with altitude.

Natural Regions of the U.S.S.R. is a volume of regional detail. There are no chapters on the Union as a whole and no generalizations. This is reflected in Berg's Introduction where he writes, "The area occupied by the USSR is so vast and so diverse in its natural features that it would not be expedient to present a physical geographic description of this entire territory without dividing it into natural regions."

A few samples from the chapter on the Steppe will provide an indication of Berg's style. "The name 'steppe' is given to an area which is more or less level, unforested, not flooded by high water in spring, well drained, and covered throughout the entire vegetative season with a more or less dense herbaceous vegetation growing on chernozem soils. . . . In the steppe zone (and to some extent in the forest steppe), a dry, usually hot, southeast or east wind or *sukhovey* is frequent; grain suffers severely because of these winds. . . . It is believed by some authorities that the *sukhovey* brings heat and dryness from the deserts and semideserts of Asia. But this is not the case. According to Kaminsky, the *sukhovey* usually sets in when the edge of an anticyclone passes over a given region; the *sukhovey* is associated with descending masses of air. In Voronezh *oblast* the *sukhovey* occurs most frequently in August, July, and May, and blows from SE, E, ESE, and S, but may blow also from other points of the compass. . . . On the basis of soils and vegetation, the steppe zone may be divided into two sub-zones: (1) the northern, where the soils are typical chernozems, and (2) the southern, or dry steppe, where the soils are dark chestnut. . . . From the time of Pallas (1787), the opinion was

widespread that man was to blame for the absence of forests in the steppes. It was believed that at one time the steppes were covered with forests, which were destroyed by nomads. This view is mistaken. As we know, chernozems are formed not under forests, but under steppe vegetation. When a forest grows upon chernozem, the soil undergoes degradation, that is, podzolization. As a result, we can always determine by examining the soil whether or not forest ever grew upon it. But perhaps soils degraded by forest may resume the characteristics of chernozem, if the forest is destroyed and replaced by steppe vegetation This is possible, but only on strongly carbonated subsoils (for example, on marls and limestone), or in places where ground water rich in carbonates rises to the surface. As a rule, however, degraded soils cannot be restored to chernozem without the intervention of man. Thus, the hypothesis that the steppes were covered at one time by continuous forests may be dropped."

This is a volume which should be on the reference shelf of every department of geography. Along with it, the reviewer would place the following recent volumes by Russian geographers: Balzak, *Economic Geography of the USSR* (Macmillan 1950), and Mikhailov, *Soviet Russia, the Land and Its People* (Sheridan House 1948). Two French titles would be Jorre, *L'U.R.S.S. La Terre et Les Hommes* (Société D'Éditions Françaises et Internationales, 1946), and George, *U.R.S.S. Haute-Asie–Iran* (Presses Universitaries de France 1947). The latest German treatment is Werner Leimbach's *Die Sowjet Union* (Franckh'sche Verlagshandlung Stuttgart, 1950). British geographers have contributed Gregory and Shave, *The USSR* (Harrap, 1944), and Gray, *Soviet Land, The Country, its People and their Work* (Adams and Charles Black, 1947). It may be appropriate to add that the reviewer's *Basis of Soviet Strength* (Whittelsey House, 1945) has appeared in a Dutch translation under the title of *Rusland's Rijkdom* (Kemink en Zoon, 1949). The above volumes provide an excellent reference collection on the geography of the Soviet Union. With the continued unavailability of the Great Soviet World Atlas, two small atlases are useful: Goodall, *Soviet Union in Maps* (Denoyer-Geppert, 1947), and Horrabin and Gregory, *An Atlas of the U.S.S.R.* (Penguin Books, 1945).

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A DICTIONARY OF GEOGRAPHY

W. G. Moore. *A Dictionary of Geography. Definitions and Explanations of Terms Used in Physical Geography,* "Penguin Reference Books R2," 182 pp., illustrations, Harmondsworth, Middlesex, England: Penguin Books, 1949.

Geography is a far-ranging subject and the limits of its terminology are difficult, perhaps impossible, to define. W. G. Moore started out on the noble enterprise of making a dictionary to embrace the entire field of geography but found it necessary to limit his book to physical geography to get it within the confines of the Penguin series, which have the great virtue of cheapness in an age of inflation. At 35 cents this book is a bargain indeed!

It includes about 1200 terms and covers the entire field of physical geography, particularly geomorphology, biogeography, meteorology, climatology, and oceanography. Its definitions are clear and fuller than in general purpose dictionaries. No two persons would define some of the words in quite the same way, and I would quarrel with a few of the definitions, but not many.

A sample of varied geographic terms such as "geography," "economic geography," "landform," "growing season," "cold front," "chinook," "chernozem," "savanna," "isopleth," and "nylon" suggests that for general geographic utility this work is exceeded by only two much larger general purposes dictionaries: *Webster's New International Dictionary,* 2nd edition, and the *American College Dictionary. Webster's New International Dictionary,* the unabridged (3350 pp. Springfield, Mass.: G. and C. Merriam Co., 1934 and later), is unexcelled for its comprehensiveness and for the clarity and exactness of its definitions. Though adequately summarizing past usages that are well established, it has not kept abreast academic trends in geographical terms. The *American College Dictionary* (1432 pp., New York: Random House, 1947) does not suffer in this regard. Under the editorship of Richard Hartshorne (general geography and cartography), Robert Bowman (physical geography), and Arthur H. Robinson (maps), it gives definitions of geographic terms more in accord with American academic nuances. In what other dictionary would one find geography defined as "the study of areal differentiation of the earth's surface, as

shown in the character, arrangement, and interrelations over the world of elements such as climate, relief, soil, vegetation, population, land use, industries, or states, and of the unit areas formed by the complex of these individual units." Another desk-sized valuable dictionary is the widely used *Webster's New Collegiate Dictionary* (1208 pp., Springfield, Mass.: G. and C. Merriam Co., 1949) with 125,000 entires including 10,000 place names in the gazetteer section; it is a marvel of selection and condensation.

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A NEW GAZETTEER

Webster's Geographical Dictionary. A Dictionary of Places with Geographical and Historical Information and Pronunciations. xxxi + 1293 pp. + 24 colored maps and 153 black-and-white maps, Springfield, Mass.: G. and C. Mtrriam, 1949.

There has long been a critical need for an up-to-date, reliable, comprehensive, yet handy, gazetteer of the world. Fortunately this one-volume gazetteer meets these needs and thus promises to become a standard reference work for geographers and other interested in places. Any gazetteer that covers the entire world in a single volume cannot be of great help to the specialist in his particular region; volumes devoted to individual countries will remain essential for detailed research in small areas. Within its limits of space, however, *Webster's Geographical Dictionary* is nearly ideal for general reference purposes.

Though concise, it gives just the sort of information I should seek in such a source. Thus the typical city entry gives the spelling, pronunciation, variant spellings, location (by country, district, and distance and direction from the nearest well-known city), major activities, and historical significance. Similar entries cover political units and physical features.

The total number of entries is 40,000. Coverage includes all settlements in the United States and Canada with more than 1500 population, and, in general, settlements of more than 5,000 population in the British Isles and the Dominions, 5,000 in Latin America (except curiously Brazil and Argentina 10,000), 10,000 in western and central Europe, and about 25,000 elsewhere. Colored maps cover the major periods of history and the larger world areas such as continents. Black-and-white maps for countries and the states of the United States indicate political divisions and the names of many of the settlements or physical features included in the gazetteer.

That the gazetteer is thoroughly up to date has been confirmed by spot checks of many parts of the world.

Although the older and somewhat out-of date gazetteers are now replaced by *Webster's Geographical Dictionary* for general use, it may be useful to appraise the current value of these older works. *Lippincott's New Gazetteer* is the next most useful American gazetteer; it dates back to 1906 and thus does not contain any of the new features that emerged during World War I, World War II, or the intervening years: Czechoslovakia (created 1918), Magnitogorsk (founded 1928), or Oak Ridge, Tennessee (built 1943–1944). It is reported that an entirely new edition of the Lippincott gazetteer is in preparation by Columbia University Press under the title *Columbia-Lippincott Gazetteer;* it is planned as a somewhat larger volume than Webster's, since it is to contain some 25,000 entries on the United States alone and 10,000 on the Soviet Union. The *Century Cyclopedia of Names* is of lesser value. The British publication, *Longmans' Gazetteer of the World,* edited by George G. Chisholm, dating from 1895, is terribly out of date; nevertheless it may still be profitably consulted for western Europe. *Chambers's Concise Gazetteer of the World* is too brief to be of special value.

It should be borne in mind that encyclopedias, among other things, are gazetteers also. The two most useful large encyclopedias are the *Encyclopedia Britannica* and the *Encyclopedia Americana.* For places which they cover, they give far more detailed information than any of the gazetteers. In spite of nominal annual revisions, they tend to be rather behind the times in adding new names that have become important since the basic work was compiled. Magnitogorsk, for example, is missing from both. It may be found in the handy one-volume *Columbia Encyclopedia,* which within its limits is of high quality. The *New International Encyclopedia* is sometimes of value for American names and *Chambers's Encyclopedia* for British.

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